MP0306 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appeal No. _______________

Application No.:	10/650,887
Filing Date:	August 28, 2003
Appellant:	Timothy Donovan et al.
Conf. No.:	
Group Art Unit:	2617
Examiner:	Marivelisse Santiago-Cordero
Title:	POWER SAVING APPARATUS AND METHOD

BRIEF ON APPEAL ON BEHALF OF APPELLANTS

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December 15, 2007

Sir:

This appeal is from the decision of the Patent Examiner dated May 21, 2007, rejecting claims 1-92, 94-104, 106-115, 117-122, 134, 136-155, 157-167, 169-178, 180-185, 197, 199-238, and 253-258, which are reproduced in Appendix A of this Appeal Brief.

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BRIEF ON APPEAL ON BEHALF OF APPELLANTS

In support of the Notice of Appeal filed August 15, 2007, appealing the Examiner's Rejection of each of claims 1-92, 94-104, 106-115, 117-122, 134, 136-155, 157-167, 169-178, 180-185, 197, 199-238, and 253-258, mailed May 21, 2007, which appear in the attached Appendix A, Appellants hereby provide the following remarks.

I. REAL PARTY IN INTEREST

The present application is assigned to Marvell International, Ltd. as recorded in the Patent and Trademark Office at Reel 014457, Frame 0834, Reel 015387, Frame 0252, and Reel 015387, Frame 0240.

II. RELATED APPEALS AND INTERFERENCES

The undersigned, the Assignee, and the Appellants do not know of any other appeals or interferences which would directly affect or that would be directly affected by, or have a bearing on, the Board's decision in this Appeal.

III. STATUS OF THE CLAIMS

Claims 1-92, 94-104, 106-115, 117-122, 134, 136-155, 157-167, 169-178, 180-185, 197, 199-238, and 253-258 are reproduced in the attached Appendix A and are the claims on Appeal. Each of these claims is currently pending in the application.

IV. STATUS OF THE AMENDMENTS

There are no pending amendments filed subsequent to a final rejection.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent claim 1 recites a wireless Ethernet network device (e.g. wireless network communications device 48; see FIG. 3 and Page 8, Lines 15-16) with active and low power modes, comprising: a first voltage regulator (e.g. one of regulators 68 and 70; see FIG. 3 and Page 9, Lines 13-20) that regulates supply voltage during the active mode and that is powered down during the low power mode; a second voltage regulator (e.g. regulator 98; see FIG. 3 and Page 13, Lines 4-10) that dissipates less power than said first voltage regulator and that regulates supply voltage during the low power mode; and a medium access controller (MAC) device (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22) that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode, wherein the wireless Ethernet network device at least one of transmits and receives data during the active mode.

Independent claim 31 recites similar subject matter, including first regulating means for regulating supply voltage during the active mode and that is powered down during the low power mode (e.g. one of regulators 68 and 70; see FIG. 3 and Page 9, Lines 13-20); second regulating means, which dissipates less power than said first regulating means, for regulating supply voltage during the low power mode (e.g. regulator 98; see FIG. 3 and Page 13, Lines 4-10); and media access controller selecting means for selecting said first regulating means during the active mode and said second regulating means during the low power mode (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22), wherein the wireless Ethernet network device at least one of transmits and receives data during the active mode.

Independent claim 61 recites similar subject matter, including regulating supply voltage during the active mode using a first voltage regulator (e.g. one of regulators 68 and 70; see FIG. 3 and Page 9, Lines 13-20); powering down said first voltage regulator during the low power mode (see Page 13, Lines 4-5); and regulating supply voltage during the low power mode using a second voltage regulator (e.g. regulator 98; see FIG. 3 and Page 13, Lines 4-10), which dissipates less power than said first voltage

regulator, wherein the wireless Ethernet network device at least one of transmits and receives data during the active mode.

Independent claim 18 recites similar subject matter, and additionally recites a baseband processor (BBP) that performs radio frequency mixing and that communicates with said MAC device (e.g. BBP 62; see FIG. 3 and Page 9, Lines 11-14); a first phase locked loop (PLL) that generates a first clock signal for said BBP during the active mode (e.g. PLL 58; see FIG. 3 and Page 9, Lines 20-23); and a crystal oscillator that outputs a timing signal to said first PLL during the active mode (e.g. XOSC 54; see FIG. 3 and Page 9, Lines 4-5), wherein said MAC device powers down said first PLL before shutting down said first voltage regulator and said crystal oscillator.

Independent claim 48 recites similar subject matter, including baseband (BB) processing means for performing radio frequency mixing and for communicating with said selecting means (e.g. BBP 62; see FIG. 3 and Page 9, Lines 11-14); first phase locked loop (PLL) means for generating a first clock signal for said BB processing means during the active mode (e.g. PLL 58; see FIG. 3 and Page 9, Lines 20-23); and crystal oscillating means for outputting a timing signal to said first PLL means during the active mode (e.g. XOSC 54; see FIG. 3 and Page 9, Lines 4-5).

Independent claim 78 recites similar subject matter, including generating a first clock signal for a BB processor (e.g. BBP 62; see FIG. 3 and Page 9, Lines 11-14) during the active mode using a first phase locked loop (PLL) (e.g. PLL 58; see FIG. 3 and Page 9, Lines 20-23); generating a timing signal for said first PLL using a crystal oscillator during the active mode (e.g. XOSC 54; see FIG. 3 and Page 9, Lines 4-5); and powering down said first PLL before shutting down said first voltage regulator and said crystal oscillator.

Independent claim 26 recites a baseband processor for a wireless Ethernet network device with active and low power modes (e.g. BBP 62; see FIG. 3 and Page 9, Lines 11-14), comprising: a first voltage regulator that regulates supply voltage during the active mode and that is powered down during the low power mode (e.g. one of regulators 68 and 70; see FIG. 3 and Page 9, Lines 13-20); and a second voltage regulator that dissipates less power than said first voltage regulator, and that regulates supply voltage during the low power mode (e.g. regulator 98; see FIG. 3 and Page 13,

Lines 4-10), wherein the wireless Ethernet network device at least one of transmits and receives data during the active mode.

Independent claim 56 recites similar subject matter, including first regulating means for regulating supply voltage during the active mode and that is powered down during the low power mode (e.g. one of regulators 68 and 70; see FIG. 3 and Page 9, Lines 13-20); and second regulating means, which dissipates less power than said first regulating means, for regulating supply voltage during the low power mode (e.g. regulator 98; see FIG. 3 and Page 13, Lines 4-10), wherein the wireless Ethernet network device at least one of transmits and receives data during the active mode.

Independent claim 86 recites similar subject matter, including regulating supply voltage using a first voltage regulator during the active mode (e.g. one of regulators 68 and 70; see FIG. 3 and Page 9, Lines 13-20); powering down the first voltage regulator during the low power mode (see Page 13, Lines 4-5); and regulating supply voltage using a second voltage regulator, which dissipates less power than said first voltage regulator, during the low power mode (e.g. regulator 98; see FIG. 3 and Page 13, Lines 4-10), wherein the wireless Ethernet network device at least one of transmits and receives data during the active mode and the baseband processor includes the first and second voltage regulators (e.g. BBP 62; see FIG. 3 and Page 9, Lines 11-14).

Independent claim 91 recites a wireless device (e.g. wireless network communications device 48; see FIG. 3 and Page 8, Lines 15-16) with active and low power modes, comprising: an oscillator (e.g. XOSC 54; see FIG. 3 and Page 9, Lines 4-5) that generates a first reference frequency and a second reference frequency that is lower than said first reference frequency; a radio frequency (RF) transceiver (e.g. RF transceiver 52; see FIG. 3 and Page 9, Lines 3-10) that communicates with said oscillator and that transmits and receives RF signals; a baseband processor (BBP) that communicates with said oscillator and said RF transceiver and that performs RF mixing (e.g. BBP 62; see FIG. 3 and Page 9, Lines 11-14); and a shutdown module (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22) that shuts down said BBP and said RF transceiver in said low power mode (see Page 12, Lines 22-23) and transitions from said first frequency to said second frequency when transitioning from said active mode to said low power mode, and that operates said BBP and said RF transceiver in said

active mode and transitions from said second frequency to said first frequency when transitioning from said low power mode to said active mode (see Page 10, Lines 1-17), wherein a medium access control (MAC) device includes said shutdown module.

Independent claim 154 recites similar subject matter, including oscillating means for generating a first reference frequency and a second reference frequency that is lower than said first reference frequency (e.g. XOSC 54; see FIG. 3 and Page 9, Lines 4-5); transceiving means that communicates with said oscillating means for transmitting and receiving radio frequency (RF) signals (e.g. RF transceiver 52; see FIG. 3 and Page 9, Lines 3-10); processing means that communicates with said oscillating means and said transceiving means for performing RF mixing (e.g. BBP 62; see FIG. 3 and Page 9, Lines 11-14); and shutdown means (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22) for shutting down said processing means and said transceiving means in said low power mode and transitioning from said first frequency to said second frequency when transitioning from said active mode to said low power mode (see Page 12, Lines 22-23), and for operating said processing means and said transceiving means in said active mode and transitioning from said second frequency to said first frequency when transitioning from said low power mode to said active mode (see Page 10, Lines 1-17), wherein a medium access control (MAC) device includes said shutdown means.

Independent claim 217 recites similar subject matter, including generating a first reference frequency and a second reference frequency that is lower than said first reference frequency (e.g. using XOSC 54; see FIG. 3 and Page 9, Lines 4-5); transmitting and receiving RF signals using a radio frequency (RF) transceiver (e.g. RF transceiver 52; see FIG. 3 and Page 9, Lines 3-10); performing RF mixing using a baseband processor (BBP) (e.g. BBP 62; see FIG. 3 and Page 9, Lines 11-14); shutting down said BBP and said RF transceiver in said low power mode and transitioning from said first frequency to said second frequency when transitioning from said active mode to said low power mode (see Page 12, Lines 22-23) with a medium access control (MAC) device (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22); and operating said BBP and said RF transceiver in said active mode and transitioning from said second frequency to said first frequency when transitioning from said low power mode to said active mode (see Page 10, Lines 1-17).

Independent claim 103 recites a wireless device (e.g. wireless network communications device 48; see FIG. 3 and Page 8, Lines 15-16) with active and low power modes, comprising: a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level (e.g. one of regulators 68 and 70 and regulator 98; see FIG. 3 and Page 9, Lines 13-20 and Page 13, Lines 4-10); a radio frequency (RF) transceiver that transmits and receives RF signals (e.g. RF transceiver 52; see FIG. 3 and Page 9, Lines 3-10); a baseband processor (BBP) that communicates with said RF transceiver and that performs RF mixing (e.g. BBP 62; see FIG. 3 and Page 9, Lines 11-14); and a shutdown module (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22) that shuts down said BBP and said RF transceiver in said low power mode and transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (see Page 12, Lines 22-23), and that operates said BBP and said RF transceiver in said active mode and transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (see Page 10, Lines 1-17), wherein a medium access control (MAC) device includes said shutdown module.

Independent claim 166 recites similar subject matter, including supply means for supplying a first voltage level and a second voltage level that is lower than said first voltage level (e.g. one of regulators 68 and 70 and regulator 98; see FIG. 3 and Page 9, Lines 13-20 and Page 13, Lines 4-10); transceiving means for transmitting and receiving radio frequency (RF) signals (e.g. RF transceiver 52; see FIG. 3 and Page 9, Lines 3-10); processing means (e.g. BBP 62; see FIG. 3 and Page 9, Lines 11-14) that communicates with said transceiving means for performing RF mixing; and shutdown means (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22) for shutting down said processing means and said transceiving means in said low power mode and transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (see Page 12, Lines 22-23), and for operating said processing means and said transceiving means in said active mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (see Page 10, Lines 1-17), wherein a medium access control (MAC) device includes said shutdown means.

Independent claim 226 recites similar subject matter, including supplying a first voltage level and a second voltage level that is lower than said first voltage level (e.g. using one of regulators 68 and 70 and regulator 98; see FIG. 3 and Page 9, Lines 13-20 and Page 13, Lines 4-10); transmitting and receiving RF signals using a radio frequency (RF) transceiver (e.g. RF transceiver 52; see FIG. 3 and Page 9, Lines 3-10); performing RF mixing using a baseband processor (BBP) (e.g. BBP 62; see FIG. 3 and Page 9, Lines 11-14); shutting down said BBP and said RF transceiver in said low power mode and transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (see Page 12, Lines 22-23) with a medium access control (MAC) device (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22); and operating said BBP and said RF transceiver in said active mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (see Page 10, Lines 1-17).

Independent claim 114 recites a wireless device (e.g. wireless network communications device 48; see FIG. 3 and Page 8, Lines 15-16) with active and low power modes, comprising: a first oscillator that generates a first reference frequency (e.g. XOSC 54; see FIG. 3 and Page 9, Lines 4-5); a second oscillator that generates a second reference frequency that is lower than said first frequency (e.g. low power oscillator 84; see FIG. 3 and Page 11, Lines 10-11); a first voltage supply that supplies a first voltage level to said first oscillator (e.g. one of regulators 68 and 70; see FIG. 3 and Page 9, Lines 13-20); a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator (e.g. regulator 98; see FIG. 3 and Page 13, Lines 4-10); and a shutdown module (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22) that shuts down said first oscillator and said first voltage supply in said low power mode and transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (see Page 11, Lines 8-9 and Page 12, Lines 22-23), and that operates said first oscillator in said active mode and transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (see Page 10, Lines 1-17, and Page 11, Lines 6-7), wherein the wireless device at least one of transmits and

receives data during the active mode, and wherein a medium access control (MAC) device includes said shutdown module.

Independent claim 177 recites similar subject matter, including first oscillating means for generating a first reference frequency (e.g. XOSC 54; see FIG. 3 and Page 9, Lines 4-5); second oscillating means for generating a second reference frequency that is lower than said first frequency (e.g. low power oscillator 84; see FIG. 3 and Page 11, Lines 10-11); first supply means for supplying a first voltage level to said first oscillating means (e.g. one of regulators 68 and 70; see FIG. 3 and Page 9, Lines 13-20); second supply means for supplying a second voltage level that is less than said first voltage level to said second oscillating means (e.g. regulator 98; see FIG. 3 and Page 13, Lines 4-10); and shutdown means for shutting down said first oscillating means and said first supply means (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22) in said low power mode and transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (see Page 11, Lines 8-9 and Page 12, Lines 22-23), and for operating said first oscillating means in said active mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (see Page 10, Lines 1-17, and Page 11, Lines 6-7), wherein the wireless device at least one of transmits and receives data during the active mode, wherein a medium access control (MAC) device includes said shutdown means.

Independent claim 233 recites similar subject matter, including generating a first reference frequency using a first oscillator (e.g. XOSC 54; see FIG. 3 and Page 9, Lines 4-5); generating a second reference frequency that is lower than said first frequency using a second oscillator (e.g. low power oscillator 84; see FIG. 3 and Page 11, Lines 10-11); supplying a first voltage level to said first oscillator from a first voltage supply (e.g. one of regulators 68 and 70; see FIG. 3 and Page 9, Lines 13-20); supplying a second voltage level that is lower than said first voltage level to said second oscillator from a second voltage supply (e.g. regulator 98; see FIG. 3 and Page 13, Lines 4-10); shutting down said first oscillator in said low power mode and transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (see Page 11, Lines 8-9 and Page 12, Lines 22-23) with a

medium access control (MAC) device (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22), wherein said transitioning to said low power mode includes shutting down said first voltage supply; and operating said first oscillator in said active mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (see Page 10, Lines 1-17, and Page 11, Lines 6-7), wherein the wireless device at least one of transmits and receives data during the active mode.

Independent claim 134 recites a wireless device (e.g. wireless network communications device 48; see FIG. 3 and Page 8, Lines 15-16) with active and low power modes, comprising: a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level (e.g. one of regulators 68 and 70 and regulator 98; see FIG. 3 and Page 9, Lines 13-20 and Page 13, Lines 4-10); a first wireless circuit (e.g. any component of the wireless network communications device 48, such as BBP 62, RF transceiver 52, and XOSC 54; see FIG. 3); a second wireless circuit (e.g. another component of the wireless network communications device 48, such as BBP 62, RF transceiver 52, and XOSC 54; see FIG. 3); and a shutdown module (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22) that shuts down said first wireless circuit and operates said second wireless circuit in said low power mode and transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (see Page 11, Lines 8-9 and Page 12, Lines 22-23), and that operates said first wireless circuit in said active mode and transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (see Page 10, Lines 1-17, and Page 11, Lines 6-7), wherein the wireless device at least one of transmits and receives data during the active mode, said voltage supply includes a first voltage supply that supplies said first voltage level and a second voltage supply that supplies said second voltage level, and said shutdown module shuts down said first voltage supply in said low power mode.

Independent claim 197 recites similar subject matter, including supply means for supplying a first voltage level and a second voltage level that is lower than said first voltage level (e.g. one of regulators 68 and 70 and regulator 98; see FIG. 3 and Page 9,

Lines 13-20 and Page 13, Lines 4-10); first wireless circuit means for performing a first function (e.g. any component of the wireless network communications device 48, such as BBP 62, RF transceiver 52, and XOSC 54; see FIG. 3); second wireless circuit means for performing a second function (e.g. another component of the wireless network communications device 48, such as BBP 62, RF transceiver 52, and XOSC 54; see FIG. 3); and shutdown means for shutting down said first wireless circuit means (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22) and operating said second wireless circuit in said low power mode and transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (see Page 11, Lines 8-9 and Page 12, Lines 22-23), and for operating said first wireless circuit means in said active mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (see Page 10, Lines 1-17, and Page 11, Lines 6-7), wherein the wireless device at least one of transmits and receives data during the active mode, said supply means includes first supply means for supplying said first voltage level and second supply means for supplying said second voltage level, and said shutdown means shuts down said first supply means during said low power mode.

Independent claim 145 recites a wireless device (e.g. wireless network communications device 48; see FIG. 3 and Page 8, Lines 15-16) with active and low power modes, comprising: a first oscillator that generates a first reference frequency (e.g. XOSC 54; see FIG. 3 and Page 9, Lines 4-5); a second oscillator that consumes less power than said first oscillator and that generates a second reference frequency (e.g. low power oscillator 84; see FIG. 3 and Page 11, Lines 10-11); a first voltage supply that supplies a first voltage level to said first oscillator (e.g. one of regulators 68 and 70; see FIG. 3 and Page 9, Lines 13-20); a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator (e.g. regulator 98; see FIG. 3 and Page 13, Lines 4-10); a first wireless circuit that communicates with said first oscillator (e.g. a component of the wireless network communications device 48, such as one of BBP 62 and RF transceiver 52; see FIG. 3); a second wireless circuit that communicates with said second oscillator (e.g. another component of the wireless network communications device 48, such as BBP 62; see

FIG. 3); and a shutdown module (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22) that shuts down said first wireless circuit, said first voltage supply, and said first oscillator in said low power mode, operates said second wireless circuit and said second oscillator in said low power mode and transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (see Page 11, Lines 8-9 and Page 12, Lines 22-23), and that operates said first wireless circuit and said first oscillator in said active mode and transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (see Page 10, Lines 1-17, and Page 11, Lines 6-7), wherein the wireless device at least one of transmits and receives data during the active mode.

Independent claim 208 recites similar subject matter, including first oscillating means for generating a first reference frequency (e.g. XOSC 54; see FIG. 3 and Page 9, Lines 4-5); second oscillating means for consuming less power than said first oscillating means and for generating a second reference frequency (e.g. low power oscillator 84; see FIG. 3 and Page 11, Lines 10-11); first supply means for supplying a first voltage level to said first oscillating means (e.g. one of regulators 68 and 70; see FIG. 3 and Page 9, Lines 13-20); second supply means for supplying a second voltage level that is lower than said first voltage level to said second oscillating means (e.g. regulator 98; see FIG. 3 and Page 13, Lines 4-10); first wireless circuit means for communicating with said first oscillating means (e.g. a component of the wireless network communications device 48, such as one of BBP 62 and RF transceiver 52; see FIG. 3); second wireless circuit means for communicating with said second oscillating means (e.g. another component of the wireless network communications device 48, such as BBP 62; see FIG. 3); and shutdown means (e.g. MAC 64; see FIG. 3 and Page 13, Lines 4-22) for shutting down said first wireless circuit means, said first supply means, and said first oscillating means in said low power mode, operating said second wireless circuit means and said second oscillating means in said low power mode and transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (see Page 11, Lines 8-9 and Page 12, Lines 22-23), and for operating said first wireless circuit means and said first oscillating means in said active mode and transitioning from said second voltage level to said first

voltage level when transitioning from said low power mode to said active mode (see Page 10, Lines 1-17, and Page 11, Lines 6-7), wherein the wireless device at least one of transmits and receives data during the active mode.

Independent claim 253 recites similar subject matter, including generating a first reference frequency using a first oscillator (e.g. XOSC 54; see FIG. 3 and Page 9, Lines 4-5); generating a second reference frequency using a second oscillator that consumes less power than said first oscillator (e.g. low power oscillator 84; see FIG. 3 and Page 11, Lines 10-11); supplying a first voltage level to said first oscillator from a first voltage supply (e.g. one of regulators 68 and 70; see FIG. 3 and Page 9, Lines 13-20); supplying a second voltage level that is lower than said first voltage level to said second oscillator from a second voltage supply (e.g. regulator 98; see FIG. 3 and Page 13, Lines 4-10); shutting down a first wireless circuit (e.g. a component of the wireless network communications device 48, such as one of BBP 62 and RF transceiver 52; see FIG. 3) and said first oscillator in said low power mode, operating a second wireless circuit (e.g. another component of the wireless network communications device 48, such as BBP 62; see FIG. 3) and said second oscillator in said low power mode and transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, wherein transitioning to said low power mode includes shutting down said first voltage supply (see Page 11, Lines 8-9 and Page 12, Lines 22-23); and operating said first wireless circuit and said first oscillator in said active mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (see Page 10, Lines 1-17, and Page 11, Lines 6-7), wherein the wireless device at least one of transmits and receives data during the active mode.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Appellants seek the Board's review of the rejection of:

(a) Claims 134-153, 197-216, and 246-258 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Appellants regard as the invention;

(b) Claims 1-4, 6, 8-9, 13-16, 18-22, 24-25, 31-35, 36, 38-39, 43-46, 48-52, 54-55, 61-64, 66, 68-69, 73-76, and 78-85 under 35 U.S.C. § 103(a) as being unpatentable over Jokinen (U.S. Pat. No. 5,774,813) in view of Karaoguz (Pub. No. US 2004/0029620) and Aoyama (U.S. Pat. No. 6,763,471);

(c) Claims 26-30, 56-60, and 86-90 under 35 U.S.C. § 103(a) as being unpatentable over Jokinen (U.S. Pat. No. 5,774,813) in view of Karaoguz (Pub. No. US 2004/0029620) and Aoyama (U.S. Pat. No. 6,763,471);

(d) Claims 91-92, 101-102, 154-155, 164-165, 217-218, and 224-225 under 35 U.S.C. § 103(a) as being unpatentable over Kohlschmidt (U.S. Pat. No. 6,029,061) in view of Amos (U.S. Pat. No. 6,934,870) as evidenced by Shi (Pub. No.: US 2003/0132881);

(e) Claims 103-104, 106-107, 111-113, 166-167, 169-170, 174-176, 226-228, and 231-232 under 35 U.S.C. § 103(a) as being unpatentable over Kohlschmidt (U.S. Pat. No. 6,029,061) in view of Amos (U.S. Pat. No. 6,934,870) and Aoyama (U.S. Pat. No. 6,763,471) as evidenced by Shi (U.S. Pub. No. US 2003/0132881);

(f) Claims 114-115, 120-122, 177-178, 183-185, 233-234, and 237-238 under 35 U.S.C. § 103(a) as being unpatentable over Kohlschmidt (U.S. Pat. No. 6,029,061) in view of Amos (U.S. Pat. No. 6,934,870) and Aoyama (U.S. Pat. No. 6,763,471) and Jokinen (U.S. Pat. No. 5,774,813);

(g) Claims 134, 137, 139-143, 197, 200, and 202-206 under 35 U.S.C. § 103(a) as being unpatentable over Kohlschmidt (U.S. Pat. No. 6,029,061) in view of Aoyama (U.S. Pat. No. 6,763,471) and Jokinen (U.S. Pat. No. 5,774,813); and

(h) Claims 145-146, 151-152, 208-209, 214-215, 253-254, and 257 under 35 U.S.C. § 103(a) as being unpatentable over Kohlschmidt (U.S. Pat. No. 6,029,061) in combination with Aoyama (U.S. Pat. No. 6,763,471) and Jokinen (U.S. Pat. No. 5,774,813).

VII. ARGUMENTS

A. Rejection of Claim 134-153, 197-216, and 246-258 Under 35 U.S.C. § 112, Second Paragraph

Claim 134 recites a wireless device that includes first and second "wireless" circuits. For example, as shown in an exemplary embodiment in FIG. 3 of the present application, a wireless network communications device 48 includes a plurality of circuits, including, but not limited to, a baseband processor (BBP) 62 and a radio frequency (RF) transceiver 52. The BBP 62 and the RF transceiver are "wireless" circuits by virtue of being circuits of a wireless device (i.e. "wireless circuits" refers to "circuits in a wireless device"). In other words, each of the plurality of circuits of the wireless device 48 are properly called wireless circuits because they are circuits in a wireless device.

The Examiner alleges that this intended interpretation is improper because "a person looking at the drawings and reading the claims may possibly be confused and may not understand that the term "wireless circuits," as intended by Appellants, is meant as any circuit (e.g., wired) of a wireless device," and the term "gives the notion that the circuits have no wires or that the circuits receive/transmit wirelessly." (See Page 2, Lines 11-19 of the Office Action mailed May 21, 2007). Appellants respectfully disagree.

For example, Appellants respectfully note that the device 48 is a wired device that communicates wirelessly. In other words, although the device 48 is "wireless," one skilled in the art would not necessarily determine that the device 48 "has no wires." As such, the Examiner's position appears to require that the device 48 taken as a whole is properly referred to as "wireless," but any individual circuits of the wireless device 48 should not be referred to as "wireless."

Appellants note that the test for definiteness is whether "those skilled in the art would understand what is claimed when the claim is read in light of the specification." *MPEP* § 2173.02. One skilled in the art reading claim 134 would understand that the wireless circuits referred to in the claim refer to, for example, the circuits of the wireless device 48 as shown in FIG. 3. Appellants note that one of the wireless circuits may include, for example, the RF transceiver 52. Here again, while the RF transceiver 52

communicates wirelessly, the RF transceiver 52 includes wires. Similarly, while other circuits in the wireless device 48 do not directly transmit and/or receive wirelessly, the circuits are at least indirectly involved in wireless communication by virtue of being circuits of the wireless device 48 (e.g. the BBP 62). Appellants respectfully submit that any person skilled in the art would understand that the first and second wireless circuits, which are recited as being comprised in the wireless device, refer to circuits of the wireless device 48 such as the RF transceiver 52 and the BBP 62.

In view of the foregoing, Appellants respectfully submit that claims 134-153, 197-216, and 246-258 are definite.

B. Distinctions Regarding Independent Claims 1, 18, 31, 48, 61, 78, 134, 145, 197, 208, and 253

With respect to claim 1, Appellants respectfully submit that the combination of Jokinen with Karaoguz and Aoyama is improper. At a minimum, the combination of Jokinen with Aoyama is improper.

Appellants respectfully note that it is impermissible to pick and choose from a reference in a disjointed and piecemeal manner as will support a given position to the exclusion of other parts necessary to the full appreciation of what the reference fairly teaches to one skilled in the art. ***Bausch & Lomb, Inc. v. Barnes-Hind, Inc.***, 230 USPQ 416 (Fed. Circ. 1986). Here, the Examiner is picking and choosing only so much of Jokinen and Aoyama as will support the Examiner's position.

For example, Appellants claim 1 recites, amongst other things, a first voltage regulator that regulates supply voltage during the active mode and that is powered down during the low power mode, and **a second voltage regulator that dissipates less power than said first voltage regulator** and that regulates supply voltage during the low power mode. As shown in an exemplary embodiment in FIG. 3 of the present application, a wireless device includes voltage regulators 68 and 70 (i.e. a first voltage regulator) and a low power voltage regulator 98. The voltage regulators 68 and 70 are **powered down** during a low power mode. In contrast, the low power voltage regulator

98, which dissipates less power than the other voltage regulators, is selected to supply voltage during the low power mode.

In other words, claim 1 specifically recites that a first (high power) voltage regulator is on in the active mode and off during the low power mode, and that a second (low power) voltage regulator is on during the low power mode.

Here, the Examiner acknowledges that Jokinen fails to disclose this limitation. For example, FIG. 4 of Jokinen discloses a first voltage regulator (e.g. one of REG 2, REG 3, and REG 4) and a second voltage regulator REG 1. Each of the regulators REG 2, 3, and 4 may be powered down during different modes, while the regulator REG 1 is powered on. Appellants respectfully note that Jokinen appears to be absent of any teaching or suggestion that the regulator REG 1 dissipates less power than any of the other regulators REG 2, 3, and 4.

Instead, Jokinen relies on the act of powering down the other regulators to reduce power consumption, **rather than switching to a second, low power regulator**. In other words, to provide a first voltage, Jokinen uses a combination of the voltage regulators to provide power. During a low power mode, Jokinen selectively turns off one or more of the voltage regulators to subtract that voltage regulator from the overall output. As such, a second low power regulator would be unnecessary in Jokinen, and Jokinen is absent of any teaching or suggestion that the voltage regulator REG 1 dissipates less power than any of the other regulators.

The Examiner instead relies on FIG. 3 of Aoyama to disclose "a second voltage regulator that dissipates less power than said first voltage regulator," but provides no evidence or support for this modification. As described above, Jokinen is directed to using a plurality of voltage regulators simultaneously, and turning off selected ones of the voltage regulators to reduce power consumption. In other words, Jokinen already has a specific solution for reducing power consumption. Here, the Examiner alleges that one skilled in the art would be motivated to modify Jokinen with Aoyama "for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption." (See Page 11, Lines 12-16 of the Office Action mailed May 21, 2007, hereinafter "the Office Action"). Appellants respectfully note that Jokinen already provides a different structure to reduce power consumption.

As such, one skilled in the art presented with Jokinen, which **already provides a structure for reducing power consumption**, would have no reason to modify the device with Aoyama, which **provides a different structure for reducing power consumption**. Instead, the Examiner is picking and choosing from Jokinen and Aoyama only so much of these references as will support the Examiner's position, which is impermissible.

In response, the Examiner initially alleges that "switching to a second, low power regulator" are not recited in the rejected claims. (See Page 3, Lines 5-11 of the Office Action). Appellants respectfully disagree. Claim 1 recites a second voltage regulator that **dissipates less power than the first voltage regulator** and that regulates supply voltage during the low power mode. In other words, the second voltage regulator is the second, low power regulator because it dissipates less power than the first voltage regulator. Further, Claim 1 recites that the MAC device **selects the second voltage regulator during the low power mode**. In other words, the MAC switches to the second, low power regulator. As such, the Examiner's allegation that Appellants relied upon features are not recited in the claims is improper.

The Examiner further maintains that "the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption" is support for the alleged modification. Here again, Jokinen provides structure for reducing power consumption, and the Examiner nonetheless is required to provide support for the allegation that one skilled in the art presented with Jokinen would be motivated to modify the teaching of Jokinen with the teachings of Aoyama. Instead, the Examiner merely states that the motivation is found in Aoyama (citing Column 3, Lines 20-31). This cited portion of Aoyama states:

> In addition, with passage of predetermined time after the rising/falling of the Clock signal, a voltage is reduced to one for enabling the respective units and circuits to maintain their operations. Accordingly, leakage current is reduced while the stable operation of each circuit is maintained. As a result, power consumption is reduced. Especially, when two kinds of high-speed and low-speed clock signals are used, a reduction in power consumption is considerable if the foregoing control is applied during a low-speed clock operation. Further, by limiting a circuit to receive the supply of a voltage for a fixed period to the RAM or its partial area, power consumption can be further reduced.

Appellants respectfully note that this cited portion merely states that providing a lower voltage to reduce power consumption is desirable. Here again, Jokinen already discloses a structure for reducing power consumption. Neither this portion nor any other portion of Aoyama provides motivation for modifying the structure of Jokinen, which reduces power consumption by turning off various regulators.

Further, Appellants respectfully note that the Examiner still fails to provide any reference that discloses **a MAC device that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode**. Instead, the Examiner alleges that certain devices are "notoriously well known in the art...for their configuration in wireless Ethernet networks and that MAC devices are representative of Ethernet network devices." (Page 5 of the Office Action). Appellants respectfully submit that a mere alleged **presence** of a MAC device is not an explicit or implicit disclosure that **the MAC device specifically, is selecting between the first and second voltage regulators**.

When evaluating claims for obviousness under 35 U.S.C. §103, all of the limitations must be considered and given weight. *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), MPEP § 2144.03. Here, it is clear that the Examiner has given little or no consideration of the limitation **and failed to give the limitation any weight**. For example, the Examiner cites Karaoguz, which includes a MAC device, but appears to be absent of any teaching or suggestion that the MAC device selects between **first and second voltage regulators**.

In response, the Examiner reasserts that "modifying the controller of Jokinen...to be fairly characterized as a MAC as suggested by Karagouz would have been obvious to one of ordinary skill in this art at the time of the invention by Appellants for the advantages of being widely available, cost-effective, and is the best engineering design choice." (See Page 6, Lines 4-9 of the Office Action). Appellants respectfully disagree because the Examiner appears to be relying on the mere existence of a MAC device in the secondary reference as motivation for modifying the controller of Jokinen.

For example, Appellants respectfully note that FIG. 6 of Karagouz discloses a power control module 150. The power save module 150, not MAC device 210, "determines whether to power down and power up a particular element." (See

Paragraph [0042]). In other words, **the power control module 150 selects between devices to power down and power up**. As such, the reference that the Examiner relies on to disclose that a MAC device can be modified to select between first and second voltage regulators does not even disclose that its own MAC device 210 operates in this manner. Indeed, **the MAC device 210 is one of the devices that the power control module 150 powers down**. (See Paragraph [0047]). As best understood by Appellants, Karagouz discloses a device including a MAC 210 and a separate controller 150, wherein the controller 150, not the MAC 210, selects between devices to power down and power up. In view of the foregoing, Appellants respectfully submit that one skilled in the art would find no motivation in Karagouz to modify a MAC device to select between voltage regulators when the MAC 210 of Karagouz is itself powered down by a controller 150 that is already modified as a power control device.

Appellants respectfully submit that claim 1, as well as its dependent claims, should be allowable for at least the above reasons. Claims 18, 31, 48, 61, 78, 134, 145, 177, 197, 208, 233, and 253, as well as their corresponding dependent claims, should be allowable for at least similar reasons.

C. Distinctions Regarding Independent Claims 26, 56, and 86

With respect to claim 26, Jokinen, either singly or in combination with Karaoguz and Aoyama, fails to show, teach, or suggest at least **a baseband processor comprising a first voltage regulator** that regulates supply voltage during the active mode and that is powered down during the low power mode **and a second voltage regulator** that dissipates less power than said first voltage regulator.

As shown in an exemplary embodiment in FIG. 3 of the present application, a wireless device 48 includes a baseband processor (BBP) 62. The BBP 62 includes voltage regulators 68 and 70 and low power voltage regulator 98. In other words, **the BBP includes the first and second voltage regulators**.

None of the cited prior art references discloses this limitation. The Examiner acknowledges that Jokinen fails to specifically disclose a BBP. Instead, the Examiner

relies on Karaoguz to disclose "a baseband processor...with active and low power modes." Appellants respectfully note that **Karaoguz still fails to disclose that the alleged BBP includes the first and second voltage regulators** as Appellants claims recite.

In response, the Examiner alleges that Jokinen itself discloses a processor that includes first and second voltage regulators. (See Page 6, Lines 15-17 of the Office Action). Appellants respectfully disagree. For example, the Examiner relies on Column 1, Lines 13-17 and Column 4, Lines 40-45 of Jokinen to disclose a processor that includes first and second voltage regulators. Appellants respectfully submit that neither these cited portions nor any other portion of Jokinen discloses that **a processor includes the voltage regulators**. For example, the first cited portion states that battery power devices include "mobile telephones, portable computers, portable telefax terminals, portable copying machines, portable oscilloscopes, portable hospital equipment, and so on." Similarly, the second cited portions states that "the invention is applicable to electronic devices of different types." Neither portion discloses, specifically, that **a processor includes the voltage regulators**.

Here again, Appellants respectfully note that as shown in an exemplary embodiment in FIG. 3 of the present application, the BBP 62 includes the voltage regulators 68 and 70 and the low power voltage regulator 98. In contrast, even if the recited devices of Jokinen include a processor and the voltage regulators, Jokinen is absent of any teaching or suggestion that the processor itself includes the voltage regulators.

In view of the foregoing, Appellants respectfully submit that the Examiner fails to provide any reference that discloses that the BBP includes the first and second voltage regulators. Claim 26, as well as its dependent claims, should be allowable for at least the above reasons. Claims 56 and 86, as well as their corresponding dependent claims, should be allowable for at least similar reasons.

D. Distinctions Regarding Independent Claims 91, 103, 114, 154, 166, 177, 217, 226, and 223

With respect to claim 91, Kohlschmidt, either singly or in combination with Amos, fails to show, teach, or suggest at least a MAC including a shutdown module that shuts down a BBP and an RF transceiver in a low power mode.

As shown in an exemplary embodiment in FIG. 3 of the present application, a wireless device 48 includes a MAC 64. The MAC 64 shuts down controls various oscillators and voltage regulators to shut down a BBP 62 and an RF transceiver 52 in a low power mode.

The Examiner acknowledges that Kohlschmidt fails to specifically disclose this limitation and instead relies on Amos, citing Column 3, Lines 3-8 and 19-24 of Amos. Appellants respectfully note that these cited portions of Amos disclose that the MAC selectively enables oscillators that provide clocks **to the MAC**. In other words, the alleged shutdown module in the MAC of Amos does not shutdown a BBP and an RF transceiver as claim 91 recites, but instead lowers an operating frequency of the MAC itself as shown below in FIG. 1:

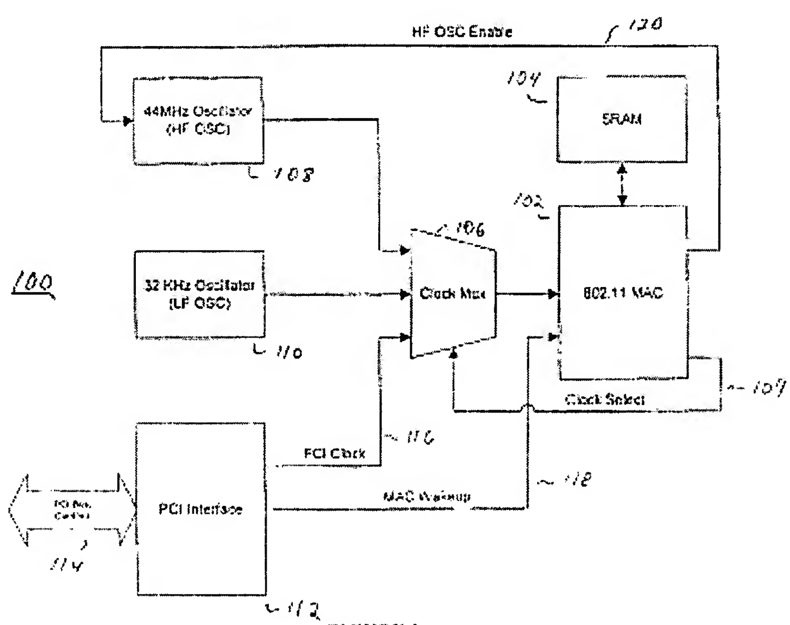

FIGURE 1

The MAC 102 switches between oscillators 108 and 110 based in part on MAC wakeup signal 118. The MAC 102 outputs a clock select signal 107 to clock multiplexer 106, which outputs a clock to the MAC 102 accordingly. As such, the alleged shutdown module included in the MAC 102 of Amos is not analogous to the shutdown module of Appellants claim 91, which recites that the shutdown module shuts down the BBP and the RF transceiver. As best understood by Appellants, Amos is absent of any teaching or suggestion that the MAC 102 includes a shutdown module that shuts down anything other than itself.

Appellants respectfully submit that claim 91, as well its dependent claims, should be allowable for at least the above reasons. Claims 103, 114, 154, 166, 177, 217, 226, and 233, as well as their corresponding dependent claims, should be allowable for at least similar reasons.

VIII. CONCLUSION

Appellants respectfully request the Honorable Board of Patent Appeals and Interferences to reverse the Examiner's rejection of each of pending claims 1-92, 94-104, 106-115, 117-122, 134, 136-155, 157-167, 169-178, 180-185, 197, 199-238, and 253-258. Appellants respectfully submit that the prior art does not teach or suggest one or more limitations of the claims as discussed above. Accordingly, for at least the aforementioned reasons, Appellants respectfully request the Honorable members of the Board of Patent Appeals and Interferences to reverse the outstanding rejections in connection with the present application and permit each of claims 1-92, 94-104, 106-115, 117-122, 134, 136-155, 157-167, 169-178, 180-185, 197, 199-238, and 253-258to be passed to allowance in connection with the present application.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Damian M. Aquino, Reg. No. 54,964, at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-

0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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IX. APPENDIX A

CLAIMS APPENDED

This is a complete and current listing of the claims.

1. (Previously Presented) A wireless Ethernet network device with active and low power modes, comprising:

a first voltage regulator that regulates supply voltage during the active mode and that is powered down during the low power mode;

a second voltage regulator that dissipates less power than said first voltage regulator and that regulates supply voltage during the low power mode;

a medium access controller (MAC) device that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode, wherein the wireless Ethernet network device at least one of transmits and receives data during the active mode.

2. (Original) The wireless Ethernet network device of Claim 1 further comprising a baseband processor (BBP) that performs radio frequency mixing and that communicates with said MAC device.

3. (Original) The wireless Ethernet network device of Claim 2 wherein at least one of said first and second voltage regulators is located in said BBP.

4. (Original) The wireless Ethernet network device of Claim 2 further comprising a first phase locked loop (PLL) that generates a first clock signal for said BBP during the active mode.

5. (Original) The wireless Ethernet network device of Claim 4 wherein said first PLL is located in said BBP.

6. (Original) The wireless Ethernet network device of Claim 4 further comprising a crystal oscillator that outputs a timing signal to said first PLL during the active mode.

7. (Original) The wireless Ethernet network device of Claim 6 further comprising a radio frequency (RF) transceiver that transmits and receives wireless signals, that communicates with said BBP and that includes a second PLL that receives said timing signal from said crystal oscillator during the active mode and that generates a second clock signal for said RF transceiver.

8. (Original) The wireless Ethernet network device of Claim 7 further comprising a first oscillator that generates a third clock signal during the low power mode, wherein said first oscillator dissipates less power than said crystal oscillator.

9. (Original) The wireless Ethernet network device of Claim 1 wherein when said MAC device initiates the low power mode, said first voltage regulator is shut down.

10. (Original) The wireless Ethernet network device of Claim 7 wherein when said MAC device initiates the low power mode, said RF transceiver is shut down.

11. (Original) The wireless Ethernet network device of Claim 7 wherein when said MAC device initiates the low power mode, said first and second PLL are shut down.

12. (Original) The wireless Ethernet network device of Claim 7 wherein when said MAC device initiates the low power mode, said crystal oscillator is shut down.

13. (Original) The wireless Ethernet network device of Claim 8 wherein said MAC device includes a counter and wherein when said MAC device initiates the

low power mode, said second voltage regulator powers said first oscillator and said counter.

14. (Original) The wireless Ethernet network device of Claim 13 wherein when said counter reaches a predetermined count, said MAC device powers up at least two of said crystal oscillator, said first voltage regulator, said RF transceiver, said first PLL and said second PLL.

15. (Original) The wireless Ethernet network device of Claim 1 wherein said wireless Ethernet network device is operated in an infrastructure mode.

16. (Original) The wireless Ethernet network device of Claim 1 wherein said wireless Ethernet network device is operated in an ad hoc mode.

17. (Original) The wireless Ethernet network device of Claim 7 wherein said MAC device includes an external interface and wherein when said MAC device receives a wake up signal from a host via said external interface, said MAC device powers up at least two of said crystal oscillator, said first voltage regulator, said RF transceiver and said first and second PLL.

18. (Previously Presented) A wireless Ethernet network device with active and low power modes, comprising:

a first voltage regulator that regulates supply voltage during the active mode and that is powered down during the low power mode;

a second voltage regulator that dissipates less power than said first voltage regulator and that regulates supply voltage during the low power mode;

a medium access controller (MAC) device that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode;

a baseband processor (BBP) that performs radio frequency mixing and that communicates with said MAC device;

a first phase locked loop (PLL) that generates a first clock signal for said BBP during the active mode; and

a crystal oscillator that outputs a timing signal to said first PLL during the active mode,

wherein said MAC device powers down said first PLL before shutting down said first voltage regulator and said crystal oscillator.

19. (Original) The wireless Ethernet network device of Claim 6 wherein said crystal oscillator is an external crystal oscillator (XOSC).

20. (Original) The wireless Ethernet network device of Claim 6 wherein said crystal oscillator includes an external crystal and an amplifier that is integrated with one of said MAC device, said BBP, and said RF transceiver.

21. (Original) The wireless Ethernet network device of Claim 1 wherein said MAC device includes transmit and receive state machines and a transmit buffer and wherein said MAC device initiates said low power mode when said transmit buffer is empty and said transmit and receive state machines are idle.

22. (Original) The wireless Ethernet network device of Claim 1 wherein said wireless Ethernet network device dissipates less than 2mW when in said low power mode.

23. (Original) The wireless Ethernet network device of Claim 6 further comprising a processor that communicates with said crystal oscillator and that calibrates said first oscillator using said timing signal from said crystal oscillator.

24. (Original) The wireless Ethernet network device of Claim 8 wherein said first oscillator is located in said BBP.

25. (Original) The wireless Ethernet network device of Claim 8 wherein at least two of said BBP, said first voltage regulator, said second voltage regulator, said RF transceiver, said MAC device, and said first PLL are implemented by a system on chip (SOC).

26. (Previously Presented) A baseband processor for a wireless Ethernet network device with active and low power modes, comprising:

a first voltage regulator that regulates supply voltage during the active mode and that is powered down during the low power mode; and

a second voltage regulator that dissipates less power than said first voltage regulator, and that regulates supply voltage during the low power mode, wherein the wireless Ethernet network device at least one of transmits and receives data during the active mode.

27. (Original) The baseband processor of Claim 26 wherein said baseband processor receives a power mode select signal from a medium access controller.

28. (Original) The baseband processor of Claim 26 further comprising a first phase locked loop (PLL) that generates a first clock signal for said BBP during the active mode and that is powered down during the low power mode.

29. (Original) The baseband processor of Claim 28 wherein said first PLL receives a timing signal from a crystal oscillator during the active mode.

30. (Original) The baseband processor of Claim 29 further comprising a first oscillator that generates a second clock signal during the low power mode, wherein said first oscillator dissipates less power than the crystal oscillator.

31. (Previously Presented) A wireless Ethernet network device with active and low power modes, comprising:

first regulating means for regulating supply voltage during the active mode and that is powered down during the low power mode;

second regulating means, which dissipates less power than said first regulating means, for regulating supply voltage during the low power mode;

media access controller selecting means for selecting said first regulating means during the active mode and said second regulating means during the low power mode, wherein the wireless Ethernet network device at least one of transmits and receives data during the active mode.

32. (Original) The wireless Ethernet network device of Claim 31 further comprising baseband (BB) processing means for performing radio frequency mixing and for communicating with said selecting means.

33. (Original) The wireless Ethernet network device of Claim 32 wherein at least one of said first and second regulating means is located in said BB processing means.

34. (Original) The wireless Ethernet network device of Claim 32 further comprising first phase locked loop (PLL) means for generating a first clock signal for said BB processing means during the active mode.

35. (Original) The wireless Ethernet network device of Claim 34 wherein said first PLL means is located in said BB processing means.

36. (Original) The wireless Ethernet network device of Claim 34 further comprising crystal oscillating means for outputting a timing signal to said first PLL means during the active mode.

37. (Original) The wireless Ethernet network device of Claim 36 further comprising radio frequency (RF) transceiver means for transmitting and receiving wireless signals, that communicates with said BB processing means and that includes a

second PLL means for receiving said timing signal from said crystal oscillating means during the active mode and for generating a second clock signal for said RF transceiver means.

38. (Original) The wireless Ethernet network device of Claim 37 further comprising first oscillating means for generating a third clock signal during the low power mode, wherein said first oscillating means dissipates less power than said crystal oscillating means.

39. (Original) The wireless Ethernet network device of Claim 31 wherein when said selecting means initiates the low power mode, said first regulating means is shut down.

40. (Original) The wireless Ethernet network device of Claim 37 wherein when said selecting means initiates the low power mode, said RF transceiver means is shut down.

41. (Original) The wireless Ethernet network device of Claim 37 wherein when said selecting means initiates the low power mode, said first and second PLL means are shut down.

42. (Original) The wireless Ethernet network device of Claim 37 wherein when said selecting means initiates the low power mode, said crystal oscillating means is shut down.

43. (Original) The wireless Ethernet network device of Claim 38 wherein said selecting means includes counting means for counting and wherein when said selecting means initiates the low power mode, said second regulating means powers said first oscillating means and said counting means.

44. (Original) The wireless Ethernet network device of Claim 43 wherein when said counting means reaches a predetermined count, said selecting means

powers up at least two of said crystal oscillating means, said first regulating means, said RF transceiver means, said first PLL means, said BB processing means and said second PLL means.

45. (Original) The wireless Ethernet network device of Claim 31 wherein said wireless Ethernet network device is operated in an infrastructure mode.

46. (Original) The wireless Ethernet network device of Claim 31 wherein said wireless Ethernet network device is operated in an ad hoc mode.

47. (Original) The wireless Ethernet network device of Claim 37 wherein said selecting means includes an external interface and wherein when said selecting means receives a wake up signal from a host via said external interface, said selecting means powers up at least two of said crystal oscillating means, said first regulating means, said RF transceiver means and said first and second PLL means.

48. (Previously Presented) A wireless Ethernet network device with active and low power modes, comprising:

first regulating means for regulating supply voltage during the active mode and that is powered down during the low power mode;

second regulating means, which dissipates less power than said first regulating means, for regulating supply voltage during the low power mode;

selecting means for selecting said first regulating means during the active mode and said second regulating means during the low power mode;

baseband (BB) processing means for performing radio frequency mixing and for communicating with said selecting means;

first phase locked loop (PLL) means for generating a first clock signal for said BB processing means during the active mode; and

crystal oscillating means for outputting a timing signal to said first PLL means during the active mode,

wherein said selecting means powers down said first PLL means before shutting down said first regulating means and said crystal oscillating means.

49. (Original) The wireless Ethernet network device of Claim 36 wherein said crystal oscillating means is an external crystal oscillator (XOSC).

50. (Original) The wireless Ethernet network device of Claim 36 wherein said crystal oscillating means includes an external crystal and an amplifier that is integrated with one of said selecting means, said BB processing means, and said RF transceiver means.

51. (Original) The wireless Ethernet network device of Claim 31 wherein said selecting means includes transmit and receive state machines and a transmit buffer and wherein said selecting means initiates said low power mode when said transmit buffer is empty and said transmit and receive state machines are idle.

52. (Original) The wireless Ethernet network device of Claim 31 wherein said wireless Ethernet network device dissipates less than 2mW when in said low power mode.

53. (Original) The wireless Ethernet network device of Claim 36 further comprising processing means that communicates with said crystal oscillating means for calibrating said first oscillating means using said timing signal from said crystal oscillating means.

54. (Original) The wireless Ethernet network device of Claim 38 wherein said first oscillating means is located in said BB processing means.

55. (Original) The wireless Ethernet network device of Claim 38 wherein at least two of said BB processing means, said first regulating means, said second

regulating means, said RF transceiver means, said selecting means, and said first PLL means are implemented by a system on chip (SOC).

56. (Previously Presented) A baseband processor for a wireless Ethernet network device with active and low power modes, comprising:

first regulating means for regulating supply voltage during the active mode and that is powered down during the low power mode; and

second regulating means, which dissipates less power than said first regulating means, for regulating supply voltage during the low power mode, wherein the wireless Ethernet network device at least one of transmits and receives data during the active mode.

57. (Original) The baseband processor of Claim 56 wherein said baseband processing device receives a power mode select signal from a medium access controller.

58. (Original) The baseband processor of Claim 56 further comprising first phase locked loop (PLL) means for generating a first clock signal for said processing means during the active mode and that is powered down during the low power mode.

59. (Original) The baseband processor of Claim 58 wherein said first PLL means receives a timing signal from a crystal oscillator during the active mode.

60. (Original) The baseband processor of Claim 59 further comprising a first oscillating means that generates a second clock signal during the low power mode, wherein said first oscillating means dissipates less power than the crystal oscillator.

61. (Previously Presented) A method for operating a wireless Ethernet network device with active and low power modes, comprising:

regulating supply voltage during the active mode using a first voltage regulator;

powering down said first voltage regulator during the low power mode; and

regulating supply voltage during the low power mode using a second voltage regulator, which dissipates less power than said first voltage regulator, wherein the wireless Ethernet network device at least one of transmits and receives data during the active mode.

62. (Original) The method of Claim 61 further comprising performing radio frequency mixing using a baseband (BB) processor.

63. (Original) The method of Claim 62 further comprising locating at least one of said first and second voltage regulators in said BB processor.

64. (Original) The method of Claim 62 further comprising generating a first clock signal for said BB processor during the active mode using a first phase locked loop (PLL).

65. (Original) The method of Claim 64 wherein said first PLL is located in said BB processor.

66. (Original) The method of Claim 64 further comprising generating a timing signal for said first PLL using a crystal oscillator during the active mode.

67. (Original) The method of Claim 66 further comprising:

transmitting and receiving wireless signals using a radio frequency (RF) transceiver that includes a second PLL; and

receiving said timing signal from said crystal oscillator at said second PLL during the active mode and generating a second clock signal for said RF transceiver.

68. (Original) The method of Claim 67 further comprising generating a third clock signal during the low power mode using a first oscillator, wherein said first oscillator dissipates less power than said crystal oscillator.

69. (Original) The method of Claim 61 further comprising shutting down said first voltage regulator when the low power mode is initiated.

70. (Original) The method of Claim 67 further comprising shutting down said RF transceiver when the low power mode is initiated.

71. (Original) The method of Claim 67 further comprising shutting down said first and second PLL when the low power mode is initiated.

72. (Original) The method of Claim 67 further comprising shutting down said crystal oscillator when the low power mode is initiated.

73. (Original) The method of Claim 68 further comprising powering said first oscillator using said first voltage regulator and starting a counter when the low power mode is initiated.

74. (Original) The method of Claim 73 further comprising powering up at least two of said crystal oscillator, said first voltage regulator, said RF transceiver, said first PLL, said BB processor and said second PLL when said counter reaches a predetermined count.

75. (Original) The method of Claim 61 wherein said wireless Ethernet network device is operated in an infrastructure mode.

76. (Original) The method of Claim 61 wherein said wireless Ethernet network device is operated in an ad hoc mode.

77. (Original) The method of Claim 67 further comprising powering up at least two of said crystal oscillator, said first voltage regulator, said RF transceiver, said first PLL, and second PLL when a wake up signal from a host is received.

78. (Previously Presented) A method for operating a wireless Ethernet network device with active and low power modes, comprising:

regulating supply voltage during the active mode using a first voltage regulator;

powering down said first voltage regulator during the low power mode;

regulating supply voltage during the low power mode using a second voltage regulator, which dissipates less power than said first voltage regulator;

generating a first clock signal for a BB processor during the active mode using a first phase locked loop (PLL);

generating a timing signal for said first PLL using a crystal oscillator during the active mode; and

powering down said first PLL before shutting down said first voltage regulator and said crystal oscillator.

79. (Original) The method of Claim 66 wherein said crystal oscillator is an external crystal oscillator (XOSC).

80. (Previously Presented) The method of Claim 66 wherein said crystal oscillator includes an external crystal and an amplifier and further comprising integrating said amplifier with one of a MAC device, said BB processor, and said RF transceiver.

81. (Previously Presented) The method of Claim 80 wherein said MAC device includes transmit and receive state machines and a transmit buffer and further comprising initiating said low power mode when said transmit buffer is empty and said transmit and receive state machines are idle.

82. (Original) The method of Claim 61 wherein said wireless Ethernet network device dissipates less than 2mW when in said low power mode.

83. (Original) The method of Claim 66 further comprising calibrating said first oscillator using said timing signal from said crystal oscillator.

84. (Original) The method of Claim 68 further comprising locating said first oscillator in said BB processor.

85. (Previously Presented) The method of Claim 68 further comprising implementing at least two of said BB processor, said first voltage regulator, said second voltage regulator, said RF transceiver, a MAC device, and said first PLL using a system on chip (SOC).

86. (Previously Presented) A method for operating a baseband processor for a wireless Ethernet network device with active and low power modes, comprising:

regulating supply voltage using a first voltage regulator during the active mode;

powering down the first voltage regulator during the low power mode; and

regulating supply voltage using a second voltage regulator, which dissipates less power than said first voltage regulator, during the low power mode, wherein the wireless Ethernet network device at least one of transmits and receives data during the active mode and the baseband processor includes the first and second voltage regulators.

87. (Original) The method of Claim 86 further comprising receiving a power mode select signal from a medium access controller.

88. (Original) The method of Claim 86 further comprising:

generating a first clock signal using a first PLL during the active mode; and

powering down the first PLL during the low power mode.

89. (Original) The method of Claim 88 wherein said first PLL receives a timing signal from a crystal oscillator during the active mode.

90. (Original) The method of Claim 89 further comprising generating a second clock signal during the low power mode using a first oscillator that dissipates less power than the crystal oscillator.

91. (Previously Presented) A wireless device with active and low power modes, comprising:

an oscillator that generates a first reference frequency and a second reference frequency that is lower than said first reference frequency;

a radio frequency (RF) transceiver that communicates with said oscillator and that transmits and receives RF signals;

a baseband processor (BBP) that communicates with said oscillator and said RF transceiver and that performs RF mixing; and

a shutdown module that shuts down said BBP and said RF transceiver in said low power mode and transitions from said first frequency to said second frequency when transitioning from said active mode to said low power mode, and that operates said BBP and said RF transceiver in said active mode and transitions from said second frequency to said first frequency when transitioning from said low power mode to said active mode,

wherein a medium access control (MAC) device includes said shutdown module.

92. (Previously Presented) The wireless device of Claim 91 wherein said oscillator includes a first oscillator that generates said first reference frequency and a second oscillator that consumes less power than said first oscillator and that generates said second reference frequency.

93. (Cancelled).

94. (Previously Presented) The wireless device of Claim 92 wherein said first oscillator includes a crystal oscillator and said second oscillator includes a semiconductor oscillator.

95. (Previously Presented) The wireless device of Claim 91 further comprising a voltage supply that supplies a first voltage level during said active mode and a second voltage level during said low power mode.

96. (Previously Presented) The wireless device of Claim 95 wherein said voltage supply includes a first voltage supply that supplies said first voltage level and a second voltage supply that supplies said second voltage level.

97. (Previously Presented) The wireless device of Claim 95 wherein said shutdown module transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode and transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode.

98. (Previously Presented) The wireless device of Claim 91 wherein said RF transceiver includes a first phase locked loop (PLL), and wherein said shutdown module shuts down said first PLL during said low power mode and operates said first PLL during said active mode.

99. (Previously Presented) The wireless device of Claim 98 wherein said BBP includes a second PLL, and wherein said shutdown module shuts down said second PLL during said low power mode and operates said second PLL during said active mode.

100. (Previously Presented) The wireless device of Claim 96 wherein said first voltage supply includes a first voltage regulator and said second voltage supply includes a second voltage regulator.

101. (Previously Presented) The wireless device of Claim 92 wherein said shutdown module selectively calibrates said second reference frequency of said second

oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode.

102. (Previously Presented) A system comprising the wireless device of Claim 91 and further comprising a remote device that periodically transmits a beacon, wherein said shutdown module transitions said wireless device from said low power mode to said active mode prior to receiving said beacon.

103. (Previously Presented) A wireless device with active and low power modes, comprising:

a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level;

a radio frequency (RF) transceiver that transmits and receives RF signals;

a baseband processor (BBP) that communicates with said RF transceiver and that performs RF mixing; and

a shutdown module that shuts down said BBP and said RF transceiver in said low power mode and transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, and that operates said BBP and said RF transceiver in said active mode and transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode,

wherein a medium access control (MAC) device includes said shutdown module.

104. (Previously Presented) The wireless device of Claim 103 wherein said voltage supply includes a first voltage supply that supplies said first voltage level and a second voltage supply that supplies said second voltage level.

105. (Cancelled).

106. (Previously Presented) The wireless device of Claim 103 further comprising a first oscillator that communicates with said BBP and said RF transceiver, that receives said first voltage level and that generates a first reference frequency.

107. (Previously Presented) The wireless device of Claim 106 further comprising a second oscillator that receives said second voltage level, that consumes less power than said first oscillator and that generates a second reference frequency.

108. (Previously Presented) The wireless device of Claim 107 wherein said first oscillator includes a crystal oscillator and said second oscillator includes a semiconductor oscillator.

109. (Previously Presented) The wireless device of Claim 103 wherein said RF transceiver includes a first phase locked loop (PLL), and wherein said shutdown module shuts down said first PLL during said low power mode and operates said first PLL during said active mode.

110. (Previously Presented) The wireless device of Claim 109 wherein said BBP includes a second PLL, and wherein said shutdown module shuts down said second PLL during said low power mode and operates said second PLL during said active mode.

111. (Previously Presented) The wireless device of Claim 104 wherein said first voltage supply includes a first voltage regulator and said second voltage supply includes a second voltage regulator.

112. (Previously Presented) The wireless device of Claim 107 wherein said shutdown module selectively calibrates said second reference frequency of said second oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode.

113. (Previously Presented) A system comprising the wireless device of Claim 103 and further comprising a remote device that periodically transmits a beacon, wherein said shutdown module transitions said wireless device from said low power mode to said active mode prior to receiving said beacon.

114. (Previously Presented) A wireless device with active and low power modes, comprising:

a first oscillator that generates a first reference frequency;

a second oscillator that generates a second reference frequency that is lower than said first frequency;

a first voltage supply that supplies a first voltage level to said first oscillator;

a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator; and

a shutdown module that shuts down said first oscillator and said first voltage supply in said low power mode and transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, and that operates said first oscillator in said active mode and transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode, wherein the wireless device at least one of transmits and receives data during the active mode,

wherein a medium access control (MAC) device includes said shutdown module.

115. (Previously Presented) The wireless device of Claim 114 further comprising:

a radio frequency (RF) transceiver that communicates with said first oscillator and that transmits and receives RF signals; and

a baseband processor (BBP) that communicates with said first oscillator and said RF transceiver and that performs RF mixing, wherein said shutdown module

shuts down said RF transceiver and said BBP during said low power mode and operates said BBP and said RF transceiver during said active mode.

116. (Cancelled).

117. (Previously Presented) The wireless device of Claim 114 wherein said first oscillator includes a crystal oscillator and said second oscillator includes a semiconductor oscillator.

118. (Previously Presented) The wireless device of Claim 115 wherein said RF transceiver includes a first phase locked loop (PLL), and wherein said shutdown module shuts down said first PLL during said low power mode and operates said first PLL during said active mode.

119. (Previously Presented) The wireless device of Claim 118 wherein said BBP includes a second PLL, and wherein said shutdown module shuts down said second PLL during said low power mode and operates said second PLL during said active mode.

120. (Previously Presented) The wireless device of Claim 114 wherein said first voltage supply includes a first voltage regulator and said second voltage supply includes a second voltage regulator.

121. (Previously Presented) The wireless device of Claim 114 wherein said shutdown module selectively calibrates said second reference frequency of said second oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode.

122. (Previously Presented) A system comprising the wireless device of Claim 114 and further comprising a remote device for periodically transmitting a beacon,

wherein said shutdown module transitions said wireless device from said low power mode to said active mode prior to receiving said beacon.

123-133. (Cancelled).

134. (Previously Presented) A wireless device with active and low power modes, comprising:

a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level;

a first wireless circuit;

a second wireless circuit; and

a shutdown module that shuts down said first wireless circuit and operates said second wireless circuit in said low power mode and transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, and that operates said first wireless circuit in said active mode and transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode, wherein the wireless device at least one of transmits and receives data during the active mode, said voltage supply includes a first voltage supply that supplies said first voltage level and a second voltage supply that supplies said second voltage level, and said shutdown module shuts down said first voltage supply in said low power mode.

135. (Cancelled).

136. (Previously Presented) The wireless device of Claim 134 further comprising a medium access control (MAC) device that includes said shutdown module.

137. (Previously Presented) The wireless device of Claim 134 further comprising:

a first oscillator that communicates with said first wireless circuit, that receives said first voltage level and that generates a first reference frequency; and

a second oscillator that receives said second voltage level, that communicates with said second wireless circuit, that consumes less power than said first oscillator and that generates a second reference frequency.

138. (Previously Presented) The wireless device of Claim 137 wherein said first oscillator includes a crystal oscillator and said second oscillator includes a semiconductor oscillator.

139. (Previously Presented) The wireless device of Claim 137 wherein said shutdown module shuts down said first oscillator and operates said second oscillator during said low power mode and operates said first oscillator during said active mode.

140. (Previously Presented) The wireless device of Claim 134 wherein said first wireless circuit includes a first phase locked loop (PLL), and wherein said shutdown module shuts down said first PLL during said low power mode and operates said first PLL during said active mode.

141. (Previously Presented) The wireless device of Claim 134 wherein said first wireless circuit includes at least one of a baseband processor (BBP) and/or a radio frequency (RF) transmitter.

142. (Previously Presented) The wireless device of Claim 134 wherein said first voltage supply includes a first voltage regulator and said second voltage supply includes a second voltage regulator.

143. (Previously Presented) The wireless device of Claim 137 wherein said shutdown module selectively calibrates said second reference frequency of said second oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode.

144. (Previously Presented) A system comprising the wireless device of Claim 134 and further comprising a remote device that periodically transmits a beacon, wherein said shutdown module transitions said wireless device from said low power mode to said active mode prior to receiving said beacon.

145. (Previously Presented) A wireless device with active and low power modes, comprising:

a first oscillator that generates a first reference frequency;

a second oscillator that consumes less power than said first oscillator and that generates a second reference frequency;

a first voltage supply that supplies a first voltage level to said first oscillator;

a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator;

a first wireless circuit that communicates with said first oscillator;

a second wireless circuit that communicates with said second oscillator; and

a shutdown module that shuts down said first wireless circuit, said first voltage supply, and said first oscillator in said low power mode, operates said second wireless circuit and said second oscillator in said low power mode and transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, and that operates said first wireless circuit and said first oscillator in said active mode and transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode, wherein the wireless device at least one of transmits and receives data during the active mode.

146. (Previously Presented) The wireless device of Claim 145 wherein said first wireless circuit further comprises:

a radio frequency (RF) transceiver that communicates with said first oscillator and said first voltage supply; and

a baseband processor (BBP) that communicates with said first oscillator and said first voltage supply and that performs RF mixing, wherein said shutdown module shuts down said RF transceiver and said BBP during said low power mode.

147. (Previously Presented) The wireless device of Claim 145 further comprising a medium access control (MAC) device that includes said shutdown module.

148. (Previously Presented) The wireless device of Claim 145 wherein said first oscillator includes a crystal oscillator and said second oscillator includes a semiconductor oscillator.

149. (Previously Presented) The wireless device of Claim 146 wherein said RF transceiver includes a first phase locked loop (PLL), and wherein said shutdown module shuts down said first PLL during said low power mode and operates said first PLL during said active mode.

150. (Previously Presented) The wireless device of Claim 149 wherein said BBP includes a second PLL, and wherein said shutdown module shuts down said second PLL during said low power mode and operates said second PLL during said active mode.

151. (Previously Presented) The wireless device of Claim 145 wherein said first voltage supply includes a first voltage regulator and said second voltage supply includes a second voltage regulator.

152. (Previously Presented) The wireless device of Claim 145 wherein said shutdown module selectively calibrates said second reference frequency of said second oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode.

153. (Previously Presented) A system comprising the wireless device of Claim 145 and further comprising a remote device for periodically transmitting a beacon, wherein said shutdown module transitions said wireless device from said low power mode to said active mode prior to receiving said beacon.

154. (Previously Presented) A wireless device with active and low power modes, comprising:

oscillating means for generating a first reference frequency and a second reference frequency that is lower than said first reference frequency;

transceiving means that communicates with said oscillating means for transmitting and receiving radio frequency (RF) signals;

processing means that communicates with said oscillating means and said transceiving means for performing RF mixing; and

shutdown means for shutting down said processing means and said transceiving means in said low power mode and transitioning from said first frequency to said second frequency when transitioning from said active mode to said low power mode, and for operating said processing means and said transceiving means in said active mode and transitioning from said second frequency to said first frequency when transitioning from said low power mode to said active mode,

wherein a medium access control (MAC) device includes said shutdown means.

155. (Previously Presented) The wireless device of Claim 154 wherein said oscillating means includes first oscillating means for generating said first reference frequency and second oscillating means that consumes less power than said first oscillating means for generating said second reference frequency.

156. (Cancelled).

157. (Previously Presented) The wireless device of Claim 155 wherein said first oscillating means includes a crystal oscillator and said second oscillating means includes a semiconductor oscillator.

158. (Previously Presented) The wireless device of Claim 154 further comprising supply means for supplying a first voltage level during said active mode and a second voltage level during said low power mode.

159. (Previously Presented) The wireless device of Claim 158 wherein said supply means includes first supply means for supplying said first voltage level and second supply means for supplying said second voltage level.

160. (Previously Presented) The wireless device of Claim 158 wherein said shutdown means transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, and transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode.

161. (Previously Presented) The wireless device of Claim 154 wherein said transceiving means includes first phase locking means for locking phase, and wherein said shutdown means shuts down said first phase locking means during said low power mode and operates said first phase locking means during said active mode.

162. (Previously Presented) The wireless device of Claim 161 wherein said processing means includes second phase locking means for locking phase, and wherein said shutdown means shuts down said second phase locking means during said low power mode and operates said second phase locking means during said active mode.

163. (Previously Presented) The wireless device of Claim 159 wherein said first supply means includes first voltage regulating means for regulating voltage and said second supply means includes second voltage regulating means for regulating voltage.

164. (Previously Presented) The wireless device of Claim 155 wherein said shutdown means selectively calibrates said second reference frequency of said second oscillating means using said first reference frequency of said first oscillating means before transitioning to said low power mode.

165. (Previously Presented) A system comprising the wireless device of Claim 154 and further comprising remote means for periodically transmitting a beacon, wherein said shutdown means transitions said wireless device from said low power mode to said active mode prior to receiving said beacon.

166. (Previously Presented) A wireless device with active and low power modes, comprising:

supply means for supplying a first voltage level and a second voltage level that is lower than said first voltage level;

transceiving means for transmitting and receiving radio frequency (RF) signals;

processing means that communicates with said transceiving means for performing RF mixing; and

shutdown means for shutting down said processing means and said transceiving means in said low power mode and transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, and for operating said processing means and said transceiving means in said active mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode,

wherein a medium access control (MAC) device includes said shutdown means.

167. (Previously Presented) The wireless device of Claim 166 wherein said supply means includes first supply means for supplying said first voltage level and a second supply means for supplying said second voltage level.

168. (Cancelled).

169. (Previously Presented) The wireless device of Claim 166 further comprising first oscillating means for generating a first reference frequency, that communicates with said processing means and said transceiving means and that receives said first voltage level.

170. (Previously Presented) The wireless device of Claim 169 further comprising second oscillating means for generating a second reference frequency, that receives said second voltage level and that consumes less power than said first oscillating means.

171. (Previously Presented) The wireless device of Claim 170 wherein said first oscillating means includes a crystal oscillator and said second oscillating means includes a semiconductor oscillator.

172. (Previously Presented) The wireless device of Claim 166 wherein said transceiving means includes first phase locking means for locking phase, and wherein said shutdown means shuts down said first phase locking means during said low power mode and operates said first phase locking means during said active mode.

173. (Previously Presented) The wireless device of Claim 172 wherein said processing means includes second phase locking means for locking phase, and wherein said shutdown means shuts down said second phase locking means during said low power mode and operates said second phase locking means during said active mode.

174. (Previously Presented) The wireless device of Claim 167 wherein said first supply means includes first regulating means for regulating voltage and said second supply means includes second regulating means for regulating voltage.

175. (Previously Presented) The wireless device of Claim 170 wherein said shutdown means selectively calibrates said second reference frequency of said second oscillating means using said first reference frequency of said first oscillating means before transitioning to said low power mode.

176. (Previously Presented) A system comprising the wireless device of Claim 166 and further comprising remote means for periodically transmits a beacon, wherein said shutdown means transitions said wireless device from said low power mode to said active mode prior to receiving said beacon.

177. (Previously Presented) A wireless device with active and low power modes, comprising:

first oscillating means for generating a first reference frequency;

second oscillating means for generating a second reference frequency that is lower than said first frequency;

first supply means for supplying a first voltage level to said first oscillating means;

second supply means for supplying a second voltage level that is less than said first voltage level to said second oscillating means; and

shutdown means for shutting down said first oscillating means and said first supply means in said low power mode and transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, and for operating said first oscillating means in said active mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode, wherein the wireless device at least one of transmits and receives data during the active mode,

wherein a medium access control (MAC) device includes said shutdown means.

178. (Previously Presented) The wireless device of Claim 177 further comprising:

transceiving means that communicates with said first oscillating means for transmitting and receiving radio frequency (RF) signals; and

processing means that communicates with said first oscillating means and said transceiving means for performing RF mixing, wherein said shutdown means shuts down said transceiving means and said processing means during said low power mode and operates said processing means and said transceiving means during said active mode.

179. (Cancelled).

180. (Previously Presented) The wireless device of Claim 177 wherein said first oscillating means includes a crystal oscillator and said second oscillating means includes a semiconductor oscillator.

181. (Previously Presented) The wireless device of Claim 178 wherein said transceiving means includes first phase locking means for locking phase, and wherein said shutdown means shuts down said first phase locking means during said low power mode and operates said first phase locking means during said active mode.

182. (Previously Presented) The wireless device of Claim 181 wherein said processing means includes second phase locking means for locking phase, and wherein said shutdown means shuts down said second phase locking means during said low power mode and operates said second phase locking means during said active mode.

183. (Previously Presented) The wireless device of Claim 177 wherein said first supply means includes first regulating means for regulating voltage and said second supply means includes second regulating means for regulating voltage.

184. (Previously Presented) The wireless device of Claim 177 wherein said shutdown means selectively calibrates said second reference frequency of said second oscillating means using said first reference frequency of said first oscillating means before transitioning to said low power mode.

185. (Previously Presented) A system comprising the wireless device of Claim 177 and further comprising remote means for periodically transmitting a beacon, wherein said shutdown means transitions said wireless device from said low power mode to said active mode prior to receiving said beacon.

186-196. (Cancelled).

197. (Previously Presented) A wireless device with active and low power modes, comprising:

supply means for supplying a first voltage level and a second voltage level that is lower than said first voltage level;

first wireless circuit means for performing a first function;

second wireless circuit means for performing a second function; and

shutdown means for shutting down said first wireless circuit means and operating said second wireless circuit in said low power mode and transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, and for operating said first wireless circuit means in said active mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode, wherein the wireless device at least one of transmits and receives data during the active mode, said supply means includes first supply means for supplying said first voltage level and second supply means for supplying said second voltage level, and said shutdown means shuts down said first supply means during said low power mode.

198. (Cancelled).

199. (Previously Presented) The wireless device of Claim 197 further comprising a medium access control (MAC) device that includes said shutdown means.

200. (Previously Presented) The wireless device of Claim 197 further comprising:

first oscillating means for generating a first reference frequency, that communicates with said first wireless circuit means and that receives said first voltage level; and

second oscillating means for generating a second reference frequency, that receives said second voltage level, that communicates with said second wireless circuit means, and that consumes less power than said first oscillating means.

201. (Previously Presented) The wireless device of Claim 200 wherein said first oscillating means includes a crystal oscillator and said second oscillating means includes a semiconductor oscillator.

202. (Previously Presented) The wireless device of Claim 200 wherein said shutdown means shuts down said first oscillating means and operates said second oscillating means during said low power mode and operates said first oscillating means during said active mode.

203. (Previously Presented) The wireless device of Claim 197 wherein said first wireless circuit means includes a first phase locking means for locking phase, and wherein said shutdown means shuts down said first phase locking means during said low power mode and operates said first phase locking means during said active mode.

204. (Previously Presented) The wireless device of Claim 197 wherein said first wireless circuit means includes at least one of processing means for providing RF mixing and/or transmitting means for transmitting RF signals.

205. (Previously Presented) The wireless device of Claim 197 wherein said first supply means includes first regulating means for regulating voltage and said second supply means includes second regulating means for regulating voltage.

206. (Previously Presented) The wireless device of Claim 200 wherein said shutdown means selectively calibrates said second reference frequency of said second oscillating means using said first reference frequency of said first oscillating means before transitioning to said low power mode.

207. (Previously Presented) A system comprising the wireless device of Claim 197 and further comprising remote means for periodically transmits a beacon, wherein said shutdown means transitions said wireless device from said low power mode to said active mode prior to receiving said beacon.

208. (Previously Presented) A wireless device with active and low power modes, comprising:

first oscillating means for generating a first reference frequency;

second oscillating means for consuming less power than said first oscillating means and for generating a second reference frequency;

first supply means for supplying a first voltage level to said first oscillating means;

second supply means for supplying a second voltage level that is lower than said first voltage level to said second oscillating means;

first wireless circuit means for communicating with said first oscillating means;

second wireless circuit means for communicating with said second oscillating means; and

shutdown means for shutting down said first wireless circuit means, said first supply means, and said first oscillating means in said low power mode, operating said second wireless circuit means and said second oscillating means in said low power mode and transitioning from said first voltage level to said second voltage level when

transitioning from said active mode to said low power mode, and for operating said first wireless circuit means and said first oscillating means in said active mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode, wherein the wireless device at least one of transmits and receives data during the active mode.

209. (Previously Presented) The wireless device of Claim 208 wherein said first wireless circuit means further comprises:

transceiving means that communicates with said first oscillating means and said first supply means for transmitting and receiving; and

processing means that communicates with said first oscillating means and said first supply means for performing RF mixing, wherein said shutdown means shuts down said transceiving means and said processing means during said low power mode.

210. (Previously Presented) The wireless device of Claim 208 further comprising a medium access control (MAC) device that includes said shutdown means.

211. (Previously Presented) The wireless device of Claim 208 wherein said first oscillating means includes a crystal oscillator and said second oscillating means includes a semiconductor oscillator.

212. (Previously Presented) The wireless device of Claim 209 wherein said transceiving means includes a first phase locking means for locking phase, and wherein said shutdown means shuts down said first phase locking means during said low power mode and operates said first phase locking means during said active mode.

213. (Previously Presented) The wireless device of Claim 212 wherein said processing means includes second phase locking means for locking phase, and wherein said shutdown means shuts down said second phase locking means during said low power mode and operates said second phase locking means during said active mode.

214. (Previously Presented) The wireless device of Claim 208 wherein said first supply means includes first regulating means for regulating voltage and said second supply means includes second regulating means for regulating voltage.

215. (Previously Presented) The wireless device of Claim 208 wherein said shutdown means selectively calibrates said second reference frequency of said second oscillating means using said first reference frequency of said first oscillating means before transitioning to said low power mode.

216. (Previously Presented) A system comprising the wireless device of Claim 208 and further comprising remote means for periodically transmitting a beacon, wherein said shutdown means transitions said wireless device from said low power mode to said active mode prior to receiving said beacon.

217. (Previously Presented) A method for operating wireless device with active and low power modes, comprising:

generating a first reference frequency and a second reference frequency that is lower than said first reference frequency;

transmitting and receiving RF signals using a radio frequency (RF) transceiver;

performing RF mixing using a baseband processor (BBP);

shutting down said BBP and said RF transceiver in said low power mode and transitioning from said first frequency to said second frequency when transitioning from said active mode to said low power mode with a medium access control (MAC) device; and

operating said BBP and said RF transceiver in said active mode and transitioning from said second frequency to said first frequency when transitioning from said low power mode to said active mode.

218. (Previously Presented) The method of Claim 217 further comprising:

generating said first reference frequency using a first oscillator; and

generating said second reference frequency using a second oscillator that consumes less power than said first oscillator.

219. (Previously Presented) The method of Claim 218 wherein said first oscillator includes a crystal oscillator and said second oscillator includes a semiconductor oscillator.

220. (Previously Presented) The method of Claim 217 further comprising supplying a first voltage level during said active mode and a second voltage level during said low power mode.

221. (Previously Presented) The method of Claim 219 further comprising:

transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode; and

transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode.

222. (Previously Presented) The method of Claim 217 wherein said RF transceiver includes a first phase locked loop (PLL), and further comprising shutting down said first PLL during said low power mode and operating said first PLL during said active mode.

223. (Previously Presented) The method of Claim 222 wherein said BBP includes a second PLL, and further comprising shutting down said second PLL during said low power mode and operating said second PLL during said active mode.

224. (Previously Presented) The method of Claim 218 further comprising selectively calibrating said second reference frequency using said first reference frequency before transitioning to said low power mode.

225. (Previously Presented) The method of Claim 217 further comprising:

periodically transmitting a beacon; and

transitioning said wireless device from said low power mode to said active mode prior to receiving said beacon.

226. (Previously Presented) A method for operating a wireless device with active and low power modes, comprising:

supplying a first voltage level and a second voltage level that is lower than said first voltage level;

transmitting and receiving RF signals using a radio frequency (RF) transceiver;

performing RF mixing using a baseband processor (BBP);

shutting down said BBP and said RF transceiver in said low power mode and transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode with a medium access control (MAC) device; and

operating said BBP and said RF transceiver in said active mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode.

227. (Previously Presented) The method of Claim 226 further comprising generating a first reference frequency.

228. (Previously Presented) The method of Claim 227 further comprising generating a second reference frequency.

229. (Previously Presented) The method of Claim 226 wherein said RF transceiver includes a first phase locked loop (PLL), and further comprising shutting down said first PLL during said low power mode and operating said first PLL during said active mode.

230. (Previously Presented) The method of Claim 229 wherein said BBP includes a second PLL, and further comprising shutting down said second PLL during said low power mode and operating said second PLL during said active mode.

231. (Previously Presented) The method of Claim 230 further comprising selectively calibrating said second reference frequency using said first reference frequency before transitioning to said low power mode.

232. (Previously Presented) The method of Claim 226 further comprising:

periodically transmitting a beacon; and

transitioning said wireless device from said low power mode to said active mode prior to receiving said beacon.

233. (Previously Presented) A method for operating a wireless device with active and low power modes, comprising:

generating a first reference frequency using a first oscillator;

generating a second reference frequency that is lower than said first frequency using a second oscillator;

supplying a first voltage level to said first oscillator from a first voltage supply;

supplying a second voltage level that is lower than said first voltage level to said second oscillator from a second voltage supply;

shutting down said first oscillator in said low power mode and transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode with a medium access control (MAC) device, wherein said transitioning to said low power mode includes shutting down said first voltage supply; and

operating said first oscillator in said active mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode, wherein the wireless device at least one of transmits and receives data during the active mode.

234. (Previously Presented) The method of Claim 233 further comprising:

transmitting and receiving RF signals using a radio frequency (RF) transceiver;

performing RF mixing a baseband processor (BBP); and

shutting down said RF transceiver and said BBP during said low power mode and operating said BBP and said RF transceiver during said active mode.

235. (Previously Presented) The method of Claim 234 wherein said RF transceiver includes a first phase locked loop (PLL), and further comprising shutting down said first PLL during said low power mode and operating said first PLL during said active mode.

236. (Previously Presented) The method of Claim 235 wherein said BBP includes a second PLL, and further comprising shutting down said second PLL during said low power mode and operating said second PLL during said active mode.

237. (Previously Presented) The method of Claim 233 further comprising selectively calibrating said second reference frequency of said second oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode.

238. (Previously Presented) The method of Claim 233 further comprising:

periodically transmitting a beacon; and

transitioning said wireless device from said low power mode to said active mode prior to receiving said beacon.

239-245. (Cancelled).

246-252. (Cancelled).

253. (Previously Presented) A method for operating a wireless device with active and low power modes, comprising:

generating a first reference frequency using a first oscillator;

generating a second reference frequency using a second oscillator that consumes less power than said first oscillator;

supplying a first voltage level to said first oscillator from a first voltage supply;

supplying a second voltage level that is lower than said first voltage level to said second oscillator from a second voltage supply;

shutting down a first wireless circuit and said first oscillator in said low power mode, operating a second wireless circuit and said second oscillator in said low power mode and transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, wherein transitioning to said low power mode includes shutting down said first voltage supply; and

operating said first wireless circuit and said first oscillator in said active mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode, wherein the wireless device at least one of transmits and receives data during the active mode.

254. (Previously Presented) The method of Claim 253 wherein said first wireless circuit further comprises:

a radio frequency (RF) transceiver that communicates with said first oscillator and said first voltage supply; and

a baseband processor (BBP) that communicates with said first oscillator and said first voltage supply and that performs RF mixing, wherein said shutdown module shuts down said RF transceiver and said BBP during said low power mode.

255. (Previously Presented) The method of Claim 254 wherein said RF transceiver includes a first phase locked loop (PLL), and further comprising shutting down said first PLL during said low power mode and operating said first PLL during said active mode.

256. (Previously Presented) The method of Claim 255 wherein said BBP includes a second PLL, and further comprising shutting down said second PLL during said low power mode and operating said second PLL during said active mode.

257. (Previously Presented) The method of Claim 253 further comprising selectively calibrating said second reference frequency of said second oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode.

258. (Previously Presented) The method of Claim 253 further comprising:

periodically transmitting a beacon;

transitioning said wireless device from said low power mode to said active mode prior to receiving said beacon.

X. APPENDIX B

EVIDENCE APPENDED

A copy of the Office Action mailed May 21, 2007 is attached.

XI. APPENDIX C

RELATED PROCEEDINGS APPENDED

There are no related proceedings.

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10/650,887	08/28/2003	Timothy Donovan	MP0306	8722

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ART UNIT	PAPER NUMBER
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

5059-000082 MDW

OA (3mo) Due. 8-21-07

Office Action Summary

Application No.	Applicant(s)
10/650,887	DONOVAN ET AL.
Examiner	**Art Unit**
Marivelisse Santiago-Cordero	2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *See Continuation Sheet* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 August 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Terminal Disclaimer

1. The terminal disclaimer filed on 02/01/2006 disclaiming the terminal portion of any patent granted on this application, which would extend beyond the expiration date of any patent granted on Application Number 10/665,252 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

2. Applicant's arguments filed on 3/5/07, with respect to the objection to the drawings and the rejection under 35 U.S.C 112, 2nd paragraph, have been fully considered but they are not persuasive.

Applicant argues that each of the plurality of circuits of the wireless device 48 is inherently and properly called wireless circuits because they are included in a wireless device (Remarks: page 57, 3rd paragraph; page 58, last paragraph). In response, the Examiner respectfully disagrees. Although device 48 is, as argued, a wireless device and relates to radio communications, the plurality of circuits within the device 48 is not wireless. A person looking at the drawings and reading the claims may possibly be confused and may not understand that the term "wireless circuits", as intended by applicant, is meant as any circuit (e.g., wired) of a wireless device. Instead, the claimed term "wireless circuits", gives the notion that the circuits have no wires or that the circuits receive/transmit wirelessly. Accordingly, the rejections are maintained.

3. Applicant's arguments regarding the claims in Group I (Claims 1-25, 31-55, and 61-85) have been fully considered but they are not persuasive.

Applicant argues that Jokinen fails to disclose that the regulator REG 1 dissipates less power than any of the other regulators REG 2-4 (Remarks: page 60, 2nd full paragraph). In response, the Examiner notes that is the same reason why an obviousness type rejection was made instead of an anticipation rejection.

In addition, Applicant argues that Jokinen relies on the act of powering down the other regulators to reduce power consumption, rather than switching to a second, low power regulator (Remarks: page 60,3rd full paragraph). In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., switching to a second, low power regulator) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Further, Applicant argues that the Examiner failed to provide evidence or support for this modification (Remarks: page 60, last paragraph). In response, the Examiner respectfully disagrees. Applicant is directed to the last Office Action (page 6, 3rd-4th paragraphs) stating as evidence and support Aoyama's figure 3, reference 1; col. 3, lines 6-10; col. 7, line 66 through col. 8, line 2) for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-31).

Furthermore, Applicant argues that one skilled in the art presented with Jokinen, which already provides a structure for reducing power consumption, would have no reason to modify the device with Aoyama, which provides a different structure for reducing power consumption; and thus, the Examiner is picking and choosing from Jokinen and Aoyama only so much of these

references as will support the Examiner's position (Remarks: page 61, 1st full paragraph). In response, the Examiner respectfully disagrees. The combination of Jokinen and Aoyama is not relied on as a physical combination (i.e., on a structure for reducing power consumption); instead, it is the knowledge that was available to one of ordinary skill in this art at the time of invention. Therefore, as stated in the last Office Action, the Examiner relied on Aoyama to disclose a second voltage regulator dissipating less power than a first voltage regulator for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-31), since it is knowledge that was available to one of ordinary skill in this art at the time of invention by Applicant. Consequently, in response that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the teaching, suggestion, or motivation is found in Aoyama (col. 3, lines 20-31).

Moreover, Applicant argues that the Examiner fails to provide any reference that discloses a MAC device that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode arguing that the mere alleged presence of a MAC device is not an explicit or implicit disclosure that the MAC device specifically is selecting between the first and second voltage regulators (Remarks: page 61, last paragraph). In response, the Examiner respectfully disagrees. Jokinen discloses a controller that selects said first voltage

regulator during the active mode and said second voltage regulator during the low power mode, but fails to specifically disclose the controller being a Medium Access Controller. However, as stated in the last Office Action, wireless network devices, such as the wireless device of Jokinen, may be mobile telephones or portable computers, which are notoriously well known in the art, at the time of invention by applicant, for their configuration in wireless Ethernet networks and MAC devices are representative of Ethernet network devices. Nevertheless, Karaoguz was cited as disclosing a wireless Ethernet network device with active and low power modes (Fig. 1; Abstract), comprising a medium access controller (MAC) device (Fig. 6; paragraph [0054]). Accordingly, modifying the controller of Jokinen, which selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode, to be fairly characterized as a MAC as suggested by Karagouz would have been obvious to one of ordinary skill in this art at the time of invention by applicant for the advantages of being widely available, cost-effective, and is the best engineering design choice; in addition, that the MAC complies with wireless network devices, specifically Ethernet.

In addition, Applicant argues that the Examiner failed to give the limitation any weight (Remarks: page 62, 1st paragraph). In response, the Examiner respectfully disagrees. As stated above and in the last Office Action, Jokinen discloses a <u>controller</u> that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode, but fails to specifically disclose the controller being a Medium Access Controller. Further, wireless network devices, such as the wireless device of Jokinen, may be mobile telephones or portable computers, which are notoriously well known in the art, at the time of invention by applicant, for their configuration in wireless Ethernet networks and MAC devices are

representative of Ethernet network devices. Nevertheless, Karaoguz was cited as disclosing a wireless Ethernet network device with active and low power modes (Fig. 1; Abstract), comprising a medium access controller (MAC) device (Fig. 6; paragraph [0054]). Accordingly, modifying the controller of Jokinen, which selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode, to be fairly characterized as a MAC as suggested by Karagouz would have been obvious to one of ordinary skill in this art at the time of invention by applicant for the advantages of being widely available, cost-effective, and is the best engineering design choice; in addition, that the MAC complies with wireless network devices, specifically Ethernet. It is clear from the above, that this limitation was given weight.

4. Applicant's arguments regarding the claims in Group II (Claims 26-30, 56-60, and 86-90) have been fully considered but they are not persuasive.

Applicant argues that the references fail to teach or suggest a baseband processor comprising first and second voltage regulators (Remarks: pages 62-63, Group II). In response, the Examiner respectfully disagrees. As stated in the last Office Action, Jokinen discloses a <u>processor</u> comprising first and second voltage regulator, but failed to specifically disclose the processor being a baseband processor, reason to modify with Karaoguz. Further, it was stated that wireless network devices, such as the wireless network device of Jokinen, may be mobile telephones or portable computers, notoriously well known in the art, at the time of invention by applicant, for their configuration in wireless Ethernet networks; baseband processors devices are representative of this devices, specifically, Ethernet network devices. Nevertheless, Karaoguz was cited as disclosing a baseband processor for a wireless Ethernet network device with active

and low power modes. Accordingly, modifying the processor of Jokinen, which comprises first and second voltage regulators, to be fairly characterized as a baseband processor as suggested by Karagouz would have been obvious to one of ordinary skill in this art at the time of invention by Applicant for the advantages of being widely available, cost-effective, and is the best engineering design choice; in addition, that the baseband processor complies with wireless network devices.

5. Applicant's arguments with respect to Groups III (Claims 91-92, 94-102, 154-155, 157-165, and 217-225) and IV (Claims 103-104, 106-113, 166-167, 169-176, and 226-232) has been considered but are moot in view of the new ground(s) of rejection.

However, since some of the references still apply, in response to Applicant's arguments that neither of the processors 104-105 of Kohlschmidt communicates with the RF transceiver 106 (Remarks: page 64, 3rd full paragraph), the Examiner respectfully disagrees. Figure 1 clearly shows that processors 104-105 communication with RF transceiver 106 by way of clock 101 and CSP 103.

6. Applicant's arguments with respect to Groups V (Claims 114-115, 117-122, 177-178, 180-185, and 233-238), VII (Claims 134-144, 197-207, and 246-252), and VIII (Claims 145-153, 208-216, and 253-258) have been considered but are moot in view of the new ground(s) of rejection.

Examiner's Remarks

7. For purposes of organization, the claims are structured in the following matter:

Group I: Claims 1-25, 31-55, and 61-85

Group II: Claims 26-30, 56-60, and 86-90

Group III: Claims 91-92, 94-102, 154-155, 157-165, and 217-225

Group IV: Claims 103-104, 106-113, 166-167, 169-176, and 226-232

Group V: Claims 114-115, 117-122, 177-178, 180-185, and 233-238

Group VI: Claims 134, 136-144, 197, and 199-207

Group VII: Claims 145-153, 208-216, and 253-258

(Note that the previous Group VI, encompassing claims 123-133, 186-196, and 239-245, was cancelled; consequently, previously named group VII and group VIII have been re-named as groups VI and VII, respectively.)

Drawings

8. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first and second wireless circuit (See Claims 123-153, 186-216, 239-258) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing-sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 123-153, 186-216, 239-258 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 123-153, 186-216, 239-258, it is not clear what elements a first and second wireless circuit encompasses. The drawings and specification does not clarify what the wireless circuits might be. Claim 130 states that the first wireless circuit is one of a baseband processor (BBP) an/or an RF transmitter; however, the drawings do not show these elements as wireless; nor the specification classifies them as such. Appropriate correction is required.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

GROUP I:

12. Claims 1-4, 6, 8-9, 13-16, 18-22, 24-25, 31-35, 36, 38-39, 43-46, 48-52, 54-55, 61-64, 66, 68-69, 73-82, 74-76, 78-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jokinen (Patent No.: 5,774,813) in views of Karaoguz (Pub. No.: US 2004/0029620) and Aoyama.

Regarding claim 1, Jokinen discloses a wireless network device (col. 1, lines 13-17; col. 4, lines 40-45) with active and low power modes (col. 3, lines 54-63), comprising:

a first voltage regulator that regulates supply voltage during the active mode and that is powered down during the low power mode (col. 4, lines 30-40);

a second voltage regulator (col. 4, lines 30-40), and that regulates supply voltage during the low power mode (col. 4, lines 30-40); and

a controller device that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode (col. 5, lines 17-23; col. 6, lines 12-17), wherein the wireless network device at least one of transmits and receives data during the active mode (col. 1, line 66 through col. 2, line 15).

Jokinen fails to specifically disclose Ethernet; the second voltage regulator dissipating less power than said first voltage regulator; and the controller being a medium access controller (MAC). However, note that wireless network device may be mobile telephones or portable computers, notoriously well known in the art, at the time of invention by applicant, for their configuration in wireless Ethernet networks and that MAC devices are representative of Ethernet network devices.

Nevertheless, in the same field of endeavor, Karaoguz discloses a wireless Ethernet network device with active and low power modes (Fig. 1; Abstract), comprising a medium access controller (MAC) device (Fig. 6; paragraph [0054]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify Jokinen's device to operate in a wireless Ethernet network and modifying the controlling device to be a MAC as suggested by Karaoguz for the advantages that Ethernet is widely available, cost-effective, and is the best engineering design choice; in addition, that the MAC complies with wireless network devices, specifically Ethernet.

In addition, in the same field of endeavor, Aoyama discloses a device with active and low power modes, comprising a second voltage regulator that dissipates less power than said first voltage regulator (Fig. 3, reference 1; col. 3, lines 6-10; col. 7, line 66 through col. 8, line 2).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify Jokinen's second voltage regulator to dissipate less power than said first voltage regulator as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-31)

Regarding claims 31 and 61, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 1.

Regarding claim 2, in the obvious combination, Karaoguz discloses further comprising a baseband processor (BBP) that performs radio frequency mixing (Fig. 6, reference 158) and that communicates with said MAC device (Fig. 6).

Regarding claims 32 and 62, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 2.

Regarding claim 3, Jokinen in combination with Karaoguz and Aoyama disclose the device of claim 2; but fail to specifically disclose wherein at least one of said first and second voltage regulators is located in said BBP. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to locate at least one of said first and second voltage regulators of Jokinen in combination with Karaoguz and Aoyama in said BBP, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893), in addition, to make it integral, place in a single housing.

Regarding claims 33 and 63, the limitations are rejected for the same reasons and motivations stated above for claim 3.

Regarding claim 4, in the obvious combination, Karaoguz discloses further comprising a first phase locked loop (PLL) that generates a first clock signal for said BBP during the active mode (Fig. 6; paragraph [0037]; note that PLL inherently generates clock signals).

Regarding claims 34 and 64, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 4.

Regarding claim 6, in the obvious combination, Karaoguz discloses further comprising a crystal oscillator that outputs a timing signal to said first PLL during the active mode (Fig. 6; paragraphs [0037] and [0043]; note that a crystal oscillator inherently outputs a timing signal).

Regarding claims 36 and 66, the limitations are rejected for the same reasons and motivations stated above for claim 6.

Regarding claim 8, in the obvious combination, Aoyama discloses further comprising a first oscillator that generates a third clock signal during the low power mode, wherein said first oscillator dissipates less power than said crystal oscillator (Aoyama: Fig. 3, reference 4)

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to incorporate a first oscillator that generates a third clock signal during the low power mode wherein said first oscillator dissipates less power than said crystal oscillator as suggested by Aoyama for the advantages of minimize power consumption by operating the controller at the lowest clock speed necessary and by turning off the high frequency oscillator when not in use.

Regarding claims 38 and 68, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 8.

Regarding claim 9, in the obvious combination, Jokinen discloses wherein when said MAC device (note the modification of claim 1) initiates the low power mode, said first voltage regulator is shut down (col. 4, lines 30-40).

Regarding claims 39 and 69, the limitations are rejected for the same reasons and motivations stated above for claim 3.

Regarding claim 13, in the obvious combination, Jokinen discloses wherein said MAC device includes a counter and wherein when said MAC device initiates the low power mode, said second voltage regulator powers said counter (col. 4, lines 57-61; col. 5, lies 17-23; note that the period on time inherently requires a counter). In addition, Aoyama discloses said second voltage regulator powers said first oscillator (Figs. 3 and 9).

Regarding claims 43 and 73, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 13.

Regarding claim 14, in the obvious combination, Jokinen discloses wherein when said counter reaches a predetermined count, said MAC device powers up at least said first voltage regulator (col. 8, lines 22-49). In addition, Karaoguz discloses powering up at least two of said crystal oscillator, said first voltage regulator, said RF transceiver, said first PLL and said second PLL (paragraph [0043]).

Regarding claims 44 and 74, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 14.

Regarding claim 15, in the obvious combination, Karaoguz discloses wherein said wireless Ethernet network device is operated in an infrastructure mode (paragraph [0051]).

Regarding claims 45 and 75, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 15.

Regarding claim 16, in the obvious combination, Karaoguz discloses wherein said wireless Ethernet network device is operated in an ad hoc mode (paragraph [0051]).

Regarding claims 46 and 76, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 16.

Regarding claim 18, a wireless network device with active and low power modes, comprising:

a first voltage regulator that regulates supply voltage during the active mode and that is powered down during the low power mode (col. 4, lines 30-40);

a second voltage regulator that regulates supply voltage during the low power mode (col. 4, lines 30-40);

a controller device that selects said first voltage regulator during the active mode and said second voltage regulator during the low power mode (col. 5, lines 17-23; col. 6, lines 12-17).

Jokinen fails to specifically disclose Ethernet; the second voltage regulator dissipating less power than said first voltage regulator; the controller being a medium access controller (MAC); a baseband processor (BBP) that performs radio frequency mixing and that communicates with said MAC device; and a first phase locked loop (PLL) that generates a first clock signal for said BBP during the active mode; and a crystal oscillator that outputs a timing signal to said first PLL during the active mode, wherein said MAC device powers down said first PLL before shutting down said first voltage regulator and said crystal oscillator.

However, note that wireless network device may be mobile telephones or portable computers, notoriously well known in the art, at the time of invention by applicant, for their configuration in wireless Ethernet networks and that MAC devices, baseband processor (BBP) that performs radio frequency mixing and that communicates with said MAC device and a first phase locked loop (PLL) that generates a first clock signal for said BBP and a crystal oscillator that outputs a timing signal to said first PLL are all representative of Ethernet network devices.

Nevertheless, in the same field of endeavor, Karaoguz discloses a wireless Ethernet network device with active and low power modes (Fig. 1; Abstract), comprising a medium access controller (MAC) device (Fig. 6; paragraph [0054]); a baseband processor (BBP) that performs radio frequency mixing and that communicates with said MAC device (Fig. 6); and a first phase locked loop (PLL) that generates a first clock signal for said BBP during the active

mode (Fig. 6); and a crystal oscillator that outputs a timing signal to said first PLL during the active mode (Fig. 6), wherein said MAC device powers down said first PLL before shutting down said first voltage regulator and said crystal oscillator (paragraphs [0043] and [0054].

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify Jokinen's device to operate in a wireless Ethernet network and a medium access controller (MAC); a baseband processor (BBP) that performs radio frequency mixing and that communicates with said MAC device; and a first phase locked loop (PLL) that generates a first clock signal for said BBP during the active mode; and a crystal oscillator that outputs a timing signal to said first PLL during the active mode, wherein said MAC device powers down said first PLL before shutting down said first voltage regulator and said crystal oscillator for the advantages that Ethernet is widely available, cost-effective, and is the best engineering design choice; in addition, that the MAC, BBP, PLL, and oscillator comply with wireless network devices, specifically Ethernet and for the advantages of extending the battery life to a maximum amount (Karaoguz: paragraph [0009]).

In addition, in the same field of endeavor, Aoyama discloses a device with active and low power modes, comprising a second voltage regulator that dissipates less power than said first voltage regulator (Fig. 3, reference 1; col. 3, lines 6-10; col. 7, line 66 through col. 8, line 2).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify Jokinen's second voltage regulator to dissipate less power than said first voltage regulator as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-31)

Regarding claims 48 and 78, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 18.

Regarding claim 19, in the obvious combination, Karaoguz discloses wherein said crystal oscillator is an external crystal oscillator (XOSC) (Fig. 6).

Regarding claims 49 and 79, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 19.

Regarding claim 20, in the obvious combination, Karaoguz discloses wherein said crystal oscillator includes an external crystal and an amplifier (Fig. 6; col. 4, paragraph [0037]). Karaoguz fails to disclose that is integrated with one of said MAC device, said BBP, and said RF transceiver. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to integrate said crystal oscillator with one of said MAC device, said BBP, and said RF transceiver, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893), in addition, to making integral and placing in a single housing.

Regarding claims 50 and 80, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 20.

Regarding claim 21, in the obvious combination, Karaoguz discloses wherein said MAC device includes transmit and receive state machines (Fig. 7) and a transmit buffer (Fig. 7) and further comprising initiating said low power mode when said transmit buffer is empty and said transmit and receive state machines are idle (paragraphs [0047] and [0051]).

Regarding claims 51 and 81, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 21.

Regarding claim 22, Jokinen in combination with Karaoguz and Aoyama disclose the claimed invention except for wherein said wireless Ethernet network device dissipates less than 2mW when in said low power mode. However, it would have been obvious to one of ordinary skill in this art at the time the invention was made to dissipate less than 2mW when in said low power mode, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 52 and 82, the limitations are rejected for the same reasons and motivations stated above for claim 22.

Regarding claim 24, in the obvious combination, Jokinen in combination with Karaoguz and Aoyama fail to disclose wherein said first oscillator is located in said BBP. However, it would have been obvious to one of ordinary skill in this art at the time the invention was made to locate said first oscillator in said BBP, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893), in addition, to making integral and placing in a single housing.

Regarding claims 54 and 84, the limitations are rejected for the same reasons and motivations stated above for claim 24.

Regarding claim 25, in the obvious combination, Karaoguz discloses wherein at least two of said BBP, said first voltage regulator, said second voltage regulator, said RF transceiver, said MAC device, and said first PLL are implemented by a system on chip (SOC) (paragraph [0036]).

13. Claims 5, 7, 10-12, 17, 35, 37, 40-42, 47, 65, 67, 70-72, 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jokinen in combination with Karaoguz and Aoyama and further in view of Applicant's admitted prior art.

Regarding claim 5, Jokinen in combination with Karaoguz and Aoyama fail to specifically disclose wherein said first PLL is located in said BBP.

However, Applicant's admitted prior art discloses wherein said first PLL is located in said BBP (Background of the Invention: paragraph [0003]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to locate said first PLL of Jokinen in combination with Karaoguz and Aoyama in said BBP as suggested by Applicant's admitted prior art for the advantages of making integral and placing in a single housing.

Regarding claims 35 and 65, the limitations are rejected for the same reasons and motivations stated above for claim 5.

Regarding claim 7, in the obvious combination, Karaoguz discloses further comprising a radio frequency (RF) transceiver that transmits and receives wireless signals, that communicates with said BBP (Fig. 6).

Jokinen in combination with Karaoguz and Aoyama fail to disclose that includes a second PLL that receives said timing signal from said crystal oscillator during the active mode and that generates a second clock signal for said RF transceiver.

However, Applicant's admitted prior art discloses an RF transceiver that includes a second PLL (Background of the Invention: paragraphs [0002]-[0003]; note the plurality of phase locked loops) that receives said timing signal from said crystal oscillator during the active mode and that generates a second clock signal for said RF transceiver (Background of the Invention: paragraph [0003]; the RF transceiver may include PLL which inherently generates clock signals).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to include in the RF transceiver of Jokinen in combination with Karaoguz and Aoyama a second PLL that receives said timing signal from said crystal oscillator during the active mode and that generates a second clock signal for said RF transceiver as suggested by Applicant's admitted prior art because they adjust the frequency of the input signal.

Regarding claims 37 and 67, the limitations are rejected for the same reasons and motivations stated above for claim 7.

Regarding claim 10, in the obvious combination, Karaoguz discloses wherein when said MAC device (note the modification of claim 1) initiates the low power mode, said RF transceiver is shut down (paragraph [0043]).

Regarding claims 40 and 70, the limitations are rejected for the same reasons and motivations stated above for claim 10.

Regarding claim 11, in the obvious combination, Karaoguz discloses wherein when said MAC device initiates the low power mode, said first and second PLL are shut down (paragraph [0043]; see modification of claim 7).

Regarding claims 41 and 71, the limitations are rejected for the same reasons and motivations stated above for claim 11.

Regarding claim 12, in the obvious combination, Karaoguz discloses wherein when said MAC device initiates the low power mode, said crystal oscillator is shut down (paragraph [0043]; see modification of claim 7).

Regarding claims 42 and 72, the limitations are rejected for the same reasons and motivations stated above for claim 12.

Regarding claim 17, in the obvious combination, Karaoguz discloses wherein said MAC device includes an external interface (Fig. 2) and wherein when said MAC device receives a wake up signal from a host via said external interface (Fig. 2), said MAC device powers up at least two of said crystal oscillator, said first voltage regulator, said RF transceiver and said first and second PLL (paragraph [0053].

Regarding claims 47 and 77, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 17.

14. Claims 23, 53, and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jokinen in combination with Karaoguz and Aoyama and further in view of Chapman.

Regarding claim 23, Jokinen in combination with Karaoguz and Aoyama disclose the device of claim 6, further comprising a processor that communicates with said crystal oscillator (Karaoguz: Fig. 6), but fail to disclose further comprising that calibrates said first oscillator using said timing signal from said crystal oscillator.

However, in the same field of endeavor, Chapman discloses a processor that calibrates said first oscillator using said timing signal from said crystal oscillator (from col. 2, line 65 through col. 3, line 5).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to calibrate said first oscillator using said timing signal from said crystal oscillator Jokinen in combination with Karaoguz and Aoyama as suggested by Chapman because it would compensate for the inaccuracy of the oscillator due to its dependence upon voltage, process and temperature and it's inherent frequency instability (Chapman: from col. 2, line 65 through col. 3, line 5).

Regarding claims 53 and 83, the limitations are rejected for the same reasons and motivations stated above for claim 23.

GROUP II:

15. Claims 26-30, 56-60, and 86-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jokinen in views of Karaoguz and Aoyama.

Regarding claim 26, Jokinen discloses a processor for a wireless network device (col. 1, lines 13-17; col. 4, lines 40-45) with active and low power modes (col. 3, lines 54-63), comprising:

a first voltage regulator that regulates supply voltage during the active mode and that is powered down during the low power mode (col. 4, lines 30-40); and

a second voltage regulator (col. 4, lines 30-40), and that regulates supply voltage during the low power mode (col. 4, lines 30-40); wherein the wireless network device at least one of transmits and receives data during the active mode (col. 1, line 66 through col. 2, line 15).

Jokinen fails to specifically disclose a baseband processor, Ethernet; and the second voltage regulator dissipating less power than said first voltage regulator. However, note that wireless network device may be mobile telephones or portable computers, notoriously well known in the art, at the time of invention by applicant, for their configuration in wireless Ethernet networks and that baseband processors devices are representative of this devices, specifically, Ethernet network devices.

Nevertheless, in the same field of endeavor, Karaoguz discloses a baseband processor for a wireless Ethernet network device with active and low power modes (Figs. 1 and 6; Abstract).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the processor of Jokinen to be a baseband processor for a wireless Ethernet network as suggested by Karaoguz for the advantages that Ethernet is widely available, cost-effective, and is the best engineering design choice; in addition, that the baseband processor complies with wireless network devices and are widely available.

In addition, in the same field of endeavor, Aoyama discloses a device with active and low power modes, comprising a second voltage regulator that dissipates less power than said first voltage regulator (Fig. 3, reference 1; col. 3, lines 6-10; col. 7, line 66 through col. 8, line 2).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify Jokinen's second voltage regulator to dissipate less power than said first voltage regulator as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-31)

Regarding claims 56 and 86, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 26.

Regarding claim 27, in the obvious combination, Karaoguz discloses wherein said baseband processor receives a power mode select signal from a medium access controller (Fig. 6; paragraphs [0054] and [0057]).

Regarding claims 57 and 87, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 27.

Regarding claim 28, in the obvious combination, Karaoguz discloses further comprising a first phase locked loop (PLL) that generates a first clock signal for said BBP during the active mode (Fig. 6; note that PLL inherently generate clock signals during active mode) and that is powered down during the low power mode (Fig. 6; paragraphs [0043]).

Regarding claims 58 and 88, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 28.

Regarding claim 29, in the obvious combination, Karaoguz discloses wherein said first PLL receives a timing signal from a crystal oscillator during the active mode (Fig. 6; note that PLL inherently receives timing signals from an oscillator).

Regarding claims 59 and 89, the limitations are rejected for the same reasons and motivations stated above for claim 29.

Regarding claim 30, in the obvious combination, Aoyama discloses further comprising a first oscillator that generates a second clock signal during the low power mode (Figs. 3 and 6, reference 4) wherein said first oscillator dissipates less power than the crystal oscillator (Fig. 3; col. 3, liens 32-46).

Regarding claims 60 and 90, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 30.

GROUP III:

16. Claims 91-92, 101-102, 154-155, 164-165, 217-218, and 224-225 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt (Patent No.: 6,029,061) in view of Amos, as evidenced by Shi (Pub. No.: US 2003/0132881).

Regarding claim 91, Kohlschmidt discloses a wireless device with active and low power modes, comprising:

an oscillator that generates a first reference frequency (Fig. 1, reference 101) and a second reference frequency that is lower than said first reference frequency (Fig. 1, reference 102);

a radio frequency (RF) transceiver that communicates with said oscillator and that transmits and receives RF signals (Fig. 1, reference 106);

a baseband processor (BBP) that communicates with said oscillator (Fig. 1; col. 1, lines 46-51); and

a shutdown module that shuts down said BBP and said RF transceiver in said low power mode (col. 7, lines 36-42) and transitions from said first frequency to said second frequency when transitioning from said active mode to said low power mode (col. 3, lines 22-28), and that operates said BBP and said RF transceiver in said active mode (col. 3, lines 22-28; col. 5, lines 12-21) and transitions from said second frequency to said first frequency when transitioning from said low power mode to said active mode (col. 3, lines 28-32), wherein a control device includes said shutdown module (Fig. 1, reference 103; col. 3, line 66 through col. 4, line 2)

Kohlschmidt fails to specifically disclose the BBP that performs RF mixing (Fig. 1; col. 1, lines 46-51); and a medium access control (MAC) device. Note, however, Kohlschmidt discloses most types of communication systems employ signal processors for the real-time processing of signals (Fig. 1; col. 1, lines 46-51; note that RF mixing is a type of signal processing). Further note that Kohlschmidt's Fig. 1, reference 103 can be fairly characterized as a MAC device.

Nevertheless, in the same field of endeavor, Amos discloses wherein a medium access control (MAC) device includes said shutdown module (col. 3, lines 3-8 and 19-24).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the control device of Kohlschmidt to be a MAC as suggested by Amos for the advantages of complying with wireless network configuration, such as the one in Kohlschmidt, they are widely available and is required to be responsive to events from a wireless of RF interface (Amos: col. 1, lines 41-43).

In addition, although Kohlschmidt fails to specifically disclose the BBP that performs RF mixing, the Examiner takes Official Notice of fact that it was notoriously well known in the art at the time of invention by Applicant that baseband processors perform RF mixing for the advantages of integrating the signal processing components and process in a single entity. As evidence of the fact that baseband processors perform RF mixing, see Shi paragraph [0026]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by Applicant to perform with the BBP of Kohlschmidt RF mixing for the advantages of integrating the signal processing components and process in a single entity.

Regarding claims 154 and 217, the limitations are rejected for the same reasons and motivations stated above for claim 91.

Regarding claim 92, in the obvious combination, Kohlschmidt discloses wherein said oscillator includes a first oscillator that generates said first reference frequency (Fig. 1, reference numeral 101) and a second oscillator that consumes less power than said first oscillator and that generates said second reference frequency (Fig. 1, reference numeral 102).

Regarding claims 155 and 218, the limitations are rejected for the same reasons and motivations stated above for claim 92.

Regarding claim 101, in the obvious combination, Kohlschmidt discloses wherein said shutdown module selectively calibrates said second reference frequency of said second oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode (col. 5, lines 38-43).

Regarding claims 164 and 224, the limitations are rejected for the same reasons and motivations stated above for claim 101.

Regarding claim 102, in the obvious combination, Kohlschmidt/Amos disclose a system comprising a wireless device with active and low power modes further comprising a remote device for periodically transmitting a beacon, wherein said shutdown module transitions said wireless device from said low power mode prior to receiving a beacon (Amos: col. 1, lines 62-65; col. 5, lines 1-8).

Regarding claims 165 and 225, the limitations are rejected for the same reasons and motivations stated above for claim 102.

17. Claims 94, 157, and 219 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination Amos, and further in view of Chapman.

Regarding claim 94, Kohlschmidt/Amos discloses the wireless device of claim 92 (see above) wherein said first oscillator includes a crystal oscillator (Kohlschmidt: col. 3, lines 41-56), but fail to specifically disclose said second oscillator includes a semiconductor oscillator.

However, in the same field of endeavor, Chapman discloses a wireless device with active and low power modes wherein said first oscillator includes a crystal oscillator (col. 4, lines 33-54) and said second oscillator includes a semiconductor oscillator (col. 4, lines 33-54).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to incorporate the second oscillator of Kohlschmidt/Amos to include a semiconductor oscillator as suggested by Chapman for the advantages of having the characteristics of drawing very little power in both sleep and stop modes (Chapman: col. 4, lines 39-43).

Regarding claims 157 and 219, the limitations are rejected for the same reasons and motivations stated above for claim 94.

18. Claims 95-97, 100, 158-160, 163, and 220-221 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt/Amos as applied to claim 91 above, and further in view of Aoyama.

Regarding claim 95, Kohlschmidt/Amos disclose the wireless device of claim 91 (see above), but fail to disclose further comprising a voltage supply that supplies a first voltage level during said active mode and a second voltage level during said low power mode.

However, in the same field of endeavor, Aoyama discloses a voltage supply that supplies a first voltage level during said active mode and a second voltage level during said low power mode (Figs. 3 and 9; from col. 7 line 51 through col. 8, line 2).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to incorporate in the wireless device of Kohlschmidt/Amos a voltage supply that supplies a first voltage level during said active mode and a second voltage level during said low power mode as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-24) and for supplying different voltages for different sections of the circuitry since most electronic devices require it.

Regarding claim 158 and 220, the limitations are rejected for the same reasons and motivations stated above for claim 95.

Regarding claim 96, in the obvious combination, Aoyama discloses wherein said voltage supply includes a first voltage supply that supplies said first voltage level (Figs. 3 and 9; reference Vdd) and a second voltage supply that supplies said second voltage level (Figs. 3 and 9; reference 1; from col. 7, line 66 through col. 8, line 2).

Regarding claims 159, the limitations are rejected for the same reasons and motivations stated above for claim 96.

Regarding claim 97, in the obvious combination, Aoyama discloses wherein said shutdown module transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (from col. 7, line 66 through col. 8, line 2) and transitions from said second voltage level to said first voltage level when

transitioning from said low power mode to said active mode (col. 7, lines 39-49 and col. 8, lines 28-39).

Regarding claims 160 and 221 the limitations are rejected for the same reasons and motivations stated above for claim 97.

Regarding claim 100, in the obvious combination, Aoyama discloses wherein said first voltage supply includes a first voltage regulator and said second voltage supply includes a second voltage regulator (Figs. 3 and 9).

Regarding claim 163, the limitations are rejected for the same reasons and motivations stated above for claim 100.

19. Claims 98-99, 161-162, and 222-223 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt/Amos as applied to claim 91 above, and further in view of Applicant's admitted prior art.

Regarding claim 98, Kohlschmidt/Amos disclose the wireless device of claim 91 (see above), including a first phase locked loop (PLL) (Kohlschmidt: col. 5, line 65 through col. 6, line 9), and wherein said shutdown module shuts down said first PLL during said low power mode and operates said first PLL during said active mode (Kohlschmidt: col. 6, lines 7-10); but fails to disclose wherein said RF transceiver includes the first PLL.

However, Applicant's admitted prior art discloses wherein said RF transceiver includes a first phase locked loop (PLL) (Background of the Invention: paragraph [0003]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to include in the RF transceiver of Kohlschmidt/Amos a first phase locked

loop as suggested by Applicant's admitted prior art for the advantages of making integral and placing in a single housing.

Regarding claims 161 and 222, the limitations are rejected for the same reasons and motivations stated above for claim 98.

Regarding claim 99, Kohlschmidt/Amos disclose the wireless device of claim 98 (see above), wherein said shutdown module shuts down said second PLL during said low power mode and operates said second PLL during said active mode (Kohlschmidt: col. 6, lines 7-10; col. 7, lines 36-42), but fail to disclose wherein said BBP includes a second PLL.

However, Applicant's admitted prior art discloses wherein said BBP includes a second phase locked loop (PLL) (Background of the Invention: paragraph [0003]; note the plurality of phase locked loops).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to include in the BBP of Kohlschmidt/Amos a second phase locked loop as suggested by Applicant's admitted prior art for the advantages of adjusting the frequency of the input signal, making integral and placing under a single housing; in addition, that PLL are widely available.

Regarding claim 162 and 223, the limitations are rejected for the same reasons and motivations stated above for claim 99.

GROUP IV:

20. Claims 103-104, 106-107, 111-113, 166-167, 169-170, 174-176, 226-228, and 231-232 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in views of Amos and Aoyama, as evidenced by Shi.

Regarding claim 103, Kohlschmidt discloses a wireless device with active and low power modes, comprising:

a radio frequency (RF) transceiver that transmits and receives RF signals (Fig. 1, reference 106);

a baseband processor (BBP) that communicates with said RF transceiver (Fig. 1; col. 1, lines 46-51); and

a shutdown module that shuts down said BBP and said RF transceiver in said low power mode (col. 7, lines 36-42), and that operates said BBP and said RF transceiver in said active mode (col. 3, lines 22-28; col. 5, lines 12-21),

wherein a control device includes said shutdown module (Fig. 1, reference 103; col. 3, line 66 through col. 4, line 2).

Kohlschmidt fails to specifically disclose the BBP that performs RF mixing (Fig. 1; col. 1, lines 46-51); a voltage supply that supplies a first voltage level and a second voltage level that is less that said first voltage level; transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode and a medium access control (MAC) device. Note, however, that Kohlschmidt discloses most types of communication systems employ signal processors for the real-time processing of signals (Fig. 1; col. 1, lines 46-51; note that RF mixing is a type of signal processing). Further note that Kohlschmidt's Fig. 1, reference 103 can be fairly characterized as a MAC device.

Nevertheless, in the same field of endeavor, Amos discloses wherein a medium access control (MAC) device includes said shutdown module (col. 3, lines 3-8 and 19-24).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the control device of Kohlschmidt to be a MAC as suggested by Amos for the advantages of complying with wireless network configuration, such as the one in Kohlschmidt, they are widely available and is required to be responsive to events from a wireless of RF interface (Amos: col. 1, lines 41-43).

In addition, in the same field of endeavor, Aoyama discloses a voltage supply that supplies a first voltage level and a second voltage level that is less that said first voltage level (Fig. 3, references Vdd and 1); transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (col. 7, line 51 through col. 8, line 2) and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (col. 7, lines 37-50).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to incorporate in the device of Kohlschmidt and Amos a voltage supply that supplies a first voltage level and a second voltage level that is less that said first voltage level; transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-24) and for

supplying different voltages for different sections of the circuitry since most electronic devices require it.

In addition, although Kohlschmidt fails to specifically disclose the BBP that performs RF mixing, the Examiner takes Official Notice of fact that it was notoriously well known in the art at the time of invention by Applicant that baseband processors perform RF mixing for the advantages of integrating the signal processing components and process in a single entity. As evidence of the fact that baseband processors perform RF mixing, see Shi paragraph [0026]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by Applicant to perform with the BBP of Kohlschmidt RF mixing for the advantages of integrating the signal processing components and process in a single entity.

Regarding claims 166 and 226, the limitations are rejected for the same reasons and motivations stated above for claim 103.

Regarding claim 104, in the obvious combination, Aoyama discloses wherein said voltage supply includes a first voltage supply that supplies said first voltage level (Figs. 3 and 9, reference numeral Vdd) and a second voltage supply that supplies said second voltage level (Figs. 3 and 9, reference numeral 1).

Regarding claim 167, the limitations are rejected for the same reasons and motivations stated above for claim 104.

Regarding claim 104, in the obvious combination, Amos discloses a wireless device with active and low power modes further comprising a medium access controller (MAC) device that includes said shutdown module (from col. 2, line 61 through col. 3, line 8).

Regarding claim 106, in the obvious combination, Kohlschmidt discloses further comprising a first oscillator that communicates with said BBP and said RF transceiver (Fig. 1, reference 101) that generates a first reference frequency (Fig. 1). In addition, in the obvious combination, Aoyama discloses further comprising a first oscillator that receives said first voltage level and that generates a first reference frequency (Fig. 3).

Regarding claims 169 and 227, the limitations are rejected for the same reasons and motivations stated above for claim 106.

Regarding claim 107, in the obvious combination, Kohlschmidt discloses further comprising a second oscillator (Fig. 1, reference 102) that receives said second voltage level, that consumes less power than said first oscillator and that generates a second reference frequency (Fig. 1, reference 102). In addition, in the obvious combination, Aoyama discloses further comprising a second oscillator that receives said second voltage level and that generates a second reference frequency (Fig. 3).

Regarding claims 170 and 228, the limitations are rejected for the same reasons and motivations stated above for claim 107.

Regarding claim 111, in the obvious combination, Aoyama discloses wherein said first voltage supply includes a first voltage regulator (Figs. 3 and 9, reference Vdd) and said second voltage supply includes a second voltage regulator (Figs. 3 and 9, reference 1).

Regarding claim 174, the limitations are rejected for the same reasons and motivations stated above for claim 111.

Regarding claim 112, in the obvious combination, Kohlschmidt discloses wherein said shutdown module selectively calibrates said second reference frequency of said second oscillator

using said first reference frequency of said first oscillator before transitioning to said low power mode (col. 5, lines 38-43).

Regarding claims 175 and 231, the limitations are rejected for the same reasons and motivations stated above for claim 112.

Regarding claim 113, in the obvious combination, Kohlschmidt/Amos/Aoyama discloses a system comprising the wireless device of claim 103 further comprising a remote device for periodically transmitting a beacon, wherein said shutdown module transitions said wireless device from said low power mode prior to receiving a beacon (Amos: col. 1, lines 62-65; col. 5, lines 1-8).

Regarding claims 176 and 232, the limitations are rejected for the same reasons and motivations stated above for claim 113.

21. Claims 108 and 171 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination Amos and Aoyama, and further in view of Chapman.

Regarding claim 94, Kohlschmidt/Amos/Aoyama discloses the wireless device of claim 107 (see above) wherein said first oscillator includes a crystal oscillator (Kohlschmidt: col. 3, lines 41-56), but fail to specifically disclose said second oscillator includes a semiconductor oscillator.

However, in the same field of endeavor, Chapman discloses a wireless device with active and low power modes wherein said first oscillator includes a crystal oscillator (col. 4, lines 33-54) and said second oscillator includes a semiconductor oscillator (col. 4, lines 33-54).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to incorporate the second oscillator of Kohlschmidt/Amos/Aoyama to

include a semiconductor oscillator as suggested by Chapman for the advantages of having the characteristics of drawing very little power in both sleep and stop modes (Chapman: col. 4, lines 39-43), and are widely available.

Regarding claims 171, the limitations are rejected for the same reasons and motivations stated above for claim 108.

22. Claims 109-110, 172-173, and 229-230 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt/Amos/Aoyama as applied to claim 103 above, and further in view of Applicant's admitted prior art.

Regarding claim 109, Kohlschmidt/Amos/Aoyama disclose the wireless device of claim 103 (see above), including a first phase locked loop (PLL) (Kohlschmidt: col. 5, line 65 through col. 6, line 9), and wherein said shutdown module shuts down said first PLL during said low power mode and operates said first PLL during said active mode (Kohlschmidt: col. 6, lines 7-10); but fails to disclose wherein said RF transceiver includes the first PLL.

However, Applicant's admitted prior art discloses wherein said RF transceiver includes a first phase locked loop (PLL) (Background of the Invention: paragraph [0003]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to include in the RF transceiver of Kohlschmidt/Amos/Aoyama a first phase locked loop as suggested by Applicant's admitted prior art for the advantages of making integral, placing in a single housing, and are widely available.

Regarding claims 172 and 229, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 109.

Regarding claim 110, Kohlschmidt/Amos/Aoyama disclose the wireless device of claim 109 (see above), wherein said shutdown module shuts down said second PLL during said low power mode and operates said second PLL during said active mode (Kohlschmidt: col. 6, lines 7-10; col. 7, lines 36-42), but fail to disclose wherein said BBP includes a second PLL.

However, Applicant's admitted prior art discloses wherein said BBP includes a second phase locked loop (PLL) (Background of the Invention: paragraph [0003]; note the plurality of phase locked loops).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to include in the BBP of Kohlschmidt/Amos/Aoyama a second phase locked loop as suggested by Applicant's admitted prior art for the advantages of adjusting the frequency of the input signal, making integral and placing under a single housing; in addition, that PLL are widely available.

Regarding claims 173 and 230, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 110.

GROUP V:

23. Claims 114-115, 120-122, 177-178, 183-185,233-234, and 237-238 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in views of Amos, Aoyama, and Jokinen.

Regarding claim 114, Kohlschmidt discloses a wireless device with active and low power modes, comprising:

a first oscillator that generates a first reference frequency (Fig. 1, reference 101).

a second oscillator that generates a second reference frequency that is lower than said first frequency (Fig. 1, reference 102).

a shutdown module that shuts down said first oscillator in said low power mode (col. 3, lines 22-24; col. 7, lines 36-42), and that operates first oscillator in said active mode (col. 3, lines 22-28; col. 5, lines 12-21), wherein said wireless device at least one of transmits and receives data during the active mode (col. 1, lines 1-26).

wherein a control device includes said shutdown module (Fig. 1, reference 103; col. 3, line 66 through col. 4, line 2).

Kohlschmidt fails to specifically disclose a first voltage supply that supplies a first voltage level to said first oscillator; a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator; the shutdown module that shuts down said first voltage supply in said low power mode; transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode and a medium access control (MAC) device. Note, however, that Kohlschmidt's Fig. 1, reference 103 can be fairly characterized as a MAC device.

Nevertheless, in the same field of endeavor, Amos discloses wherein a medium access control (MAC) device includes said shutdown module (col. 3, lines 3-8 and 19-24).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the control device of Kohlschmidt to be a MAC as suggested by Amos for the advantages of complying with wireless network configuration, such as the one in Kohlschmidt, they are widely available and is required to be responsive to events from a wireless of RF interface (Amos: col. 1, lines 41-43).

In addition, in the same field of endeavor, Aoyama discloses a first voltage supply that supplies a first voltage level to said first oscillator (Figs. 3 and 9, references Vdd); a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator (Figs. 3 and 9, reference 1); transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (col. 7, line 51 through col. 8, line 2) and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (col. 7, lines 37-50).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to incorporate in the device of Kohlschmidt and Amos a first voltage supply that supplies a first voltage level to said first oscillator; a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator; transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-24) and for supplying different voltages for different sections of the circuitry since most electronic devices require it.

Furthermore, the combination fails to specifically disclose the shut down module that shuts down said first voltage supply. Note, however, that Kohlschmidt discloses that all components of the device may be shut down (col. 7, lines 39-42); thus suggesting, with the

combination relied hereinabove, that the shut down module that shuts down said first voltage supply.

Nevertheless, in the same field of endeavor, Jokinen discloses a shut down module that shuts down said first voltage supply (Abstract).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to shut down, with the shut down module of Kohlschmidt, said first voltage supply as suggested by Jokinen for the advantages of reducing power consumption (Jokinen: Abstract).

Regarding claims 177 and 233, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 114.

Regarding claim 115, in the obvious combination, Kohlschmidt discloses further comprising:

a radio frequency (RF) transceiver that communicates with said first oscillator and that transmits and receives RF signals (Fig. 1, reference 106); and

a baseband processor (BBP) that communicates with said first oscillator and said RF transceiver (Fig. 1; col. 1, lines 46-51), wherein said shutdown module that shuts down said RF transceiver and said BBP in said low power mode (col. 7, lines 36-42), and that operates said BBP and said RF transceiver during said active mode (col. 3, lines 22-28; col. 5, lines 12-21).

In addition, although Kohlschmidt fails to specifically disclose the BBP that performs RF mixing, the Examiner takes Official Notice of fact that it was notoriously well known in the art at the time of invention by Applicant that baseband processors perform RF mixing for the

advantages of integrating the signal processing components and process in a single entity. As evidence of the fact that baseband processors perform RF mixing, see Shi paragraph [0026]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by Applicant to perform with the BBP of Kohlschmidt RF mixing for the advantages of integrating the signal processing components and process in a single entity.

Regarding claims 178 and 234, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 115.

Regarding claim 120, in the obvious combination, Aoyama discloses wherein said first voltage supply includes a first voltage regulator and said voltage supply includes a second voltage regulator (Figs. 3 and 9).

Regarding claim 183, the limitations are rejected as stated above for claim 120.

Regarding claim 121, in the obvious combination, Kohlschmidt discloses wherein said shutdown module selectively calibrates said second reference frequency of said second oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode (col. 5, lines 38-43).

Regarding claims 184 and 237, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 121.

Regarding claim 122, in the obvious combination, Kohlschmidt/Amos/Aoyama discloses a system comprising the wireless device of claim 114 further comprising a remote device for periodically transmitting a beacon, wherein said shutdown module transitions said wireless device from said low power mode prior to receiving a beacon (Amos: col. 1, lines 62-65; col. 5, lines 1-8).

Regarding claims 185 and 238, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 122.

24. Claims 117 and 180 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination Amos and Aoyama, and further in view of Chapman.

Regarding claim 117, Kohlschmidt/Amos/Aoyama discloses the wireless device of claim 114 (see above) wherein said first oscillator includes a crystal oscillator (Kohlschmidt: col. 3, lines 41-56), but fail to specifically disclose said second oscillator includes a semiconductor oscillator.

However, in the same field of endeavor, Chapman discloses a wireless device with active and low power modes wherein said first oscillator includes a crystal oscillator (col. 4, lines 33-54) and said second oscillator includes a semiconductor oscillator (col. 4, lines 33-54).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to incorporate the second oscillator of Kohlschmidt/Amos/Aoyama to include a semiconductor oscillator as suggested by Chapman for the advantages of having the characteristics of drawing very little power in both sleep and stop modes (Chapman: col. 4, lines 39-43), and are widely available.

Regarding claim 180, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 117.

25. Claims 118-119, 181-182, and 235-236 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt/Amos/Aoyama as applied to claim 115 above, and further in view of Applicant's admitted prior art.

Regarding claim 118, Kohlschmidt/Amos/Aoyama disclose the wireless device of claim 115 (see above), including a first phase locked loop (PLL) (Kohlschmidt: col. 5, line 65 through col. 6, line 9), and wherein said shutdown module shuts down said first PLL during said low power mode and operates said first PLL during said active mode (Kohlschmidt: col. 6, lines 7-10); but fails to disclose wherein said RF transceiver includes the first PLL.

However, Applicant's admitted prior art discloses wherein said RF transceiver includes a first phase locked loop (PLL) (Background of the Invention: paragraph [0003]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to include in the RF transceiver of Kohlschmidt/Amos/Aoyama a first phase locked loop as suggested by Applicant's admitted prior art for the advantages of making integral, placing in a single housing, and are widely available.

Regarding claims 181 and 235, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 118.

Regarding claim 119, Kohlschmidt/Amos/Aoyama disclose the wireless device of claim 118 (see above), wherein said shutdown module shuts down said second PLL during said low power mode and operates said second PLL during said active mode (Kohlschmidt: col. 6, lines 7-10; col. 7, lines 36-42), but fail to disclose wherein said BBP includes a second PLL.

However, Applicant's admitted prior art discloses wherein said BBP includes a second phase locked loop (PLL) (Background of the Invention: paragraph [0003]; note the plurality of phase locked loops).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to include in the BBP of Kohlschmidt/Amos/Aoyama a second phase

locked loop as suggested by Applicant's admitted prior art for the advantages of adjusting the frequency of the input signal, making integral and placing under a single housing; in addition, that PLL are widely available.

Regarding claims 182 and 236, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 119.

GROUP VI:

26. Claims 134, 137, 139-143, 197, 200, and 202-206 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in views of Aoyama and Jokinen.

Regarding claim 134, Kohlschmidt discloses a wireless device with active and low power modes, comprising:

a first circuit (Fig. 1, references 106 and portions of 103 either alone or in combination; col. 5, line 65 through col. 6, line 9; col. 7, lines 30-34);

a second circuit (Figs. 1 and 3-4; col. 7, lines 39-42); and

a shutdown module that shuts down said first circuit (col. 7, lines 30-34 and 39-40) and operates said second wireless circuit in said low power mode (col. 7, lines 39-42) and that operates said first wireless circuit in said active mode (col. 3, lines 28-32), wherein the wireless device at least one of transmits and receives data during the active mode (col. 1, lines 11-26; note that it is inherent that the wireless device at least one of transmits and receives data during the active mode).

Kohlschmidt fails to specifically disclose the first and second circuits are wireless; a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level; transitioning from said first voltage level to said second voltage level when

transitioning from said active mode to said low power mode, transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode, said voltage supply includes a first voltage supply that supplies said first voltage level and a second voltage supply that supplies said second voltage level, and said shutdown module shuts down said first voltage supply in said low power mode.

However, the Examiner takes Official Notice of the fact that it was notoriously well known in the art at the time of invention by applicant to modify circuits to be wireless for the advantages or facilitating maintenance and replacement of parts; thereby, making it more convenient and easier to manufacture.

In addition, it would have been an obvious matter of design choice to modify the circuits to be wireless since the applicant has not disclosed that the circuits being wireless solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the circuits of Kohlschmidt.

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the circuits of Kohlschmidt to be wireless for the advantages or facilitating maintenance and replacement of parts, is more convenient, easier to manufacture and is the best engineering design choice.

In addition, in the same field of endeavor, Aoyama discloses a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level (Figs. 3 and 9, reference Vdd and 1); transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (from col. 7, line 66 through col. 8, line 2), transitioning from said second voltage level to said first voltage level

when transitioning from said low power mode to said active mode (col. 7, lines 39-49 and col. 8, lines 28-39) said voltage supply includes a first voltage supply that supplies said first voltage level and a second voltage supply that supplies said second voltage level (Figs. 3 and 9, reference Vdd and 1).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to incorporate in the device of Kohlschmidt a voltage supply that supplies a first voltage level and a second voltage level that is less than said first voltage level; and transitions from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, transitions from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-24) and for supplying different voltages for different sections of the circuitry since most electronic devices require it.

Furthermore, the combination fails to specifically disclose the shut down module that shuts down said first voltage supply. Note, however, that Kohlschmidt discloses that all components of the device may be shut down (col. 7, lines 39-42); thus suggesting, with the combination relied hereinabove, that the shut down module that shuts down said first voltage supply.

Nevertheless, in the same field of endeavor, Jokinen discloses a shut down module that shuts down said first voltage supply in said low power mode (Abstract).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to shut down, with the shut down module of Kohlschmidt, said first

voltage supply in said low power mode as suggested by Jokinen for the advantages of reducing power consumption (Jokinen: Abstract).

Regarding claim 197, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 134.

Regarding claim 137, in the obvious combination, Kohlschmidt discloses further comprising: a first oscillator that communicates with said first wireless circuit and that generates a first reference frequency (Fig. 1, reference 101) and a second oscillator that consumes less power than said first oscillator and that generates a second reference frequency (Fig. 1, reference 102). In addition, in the obvious combination, Aoyama discloses further comprising: a first oscillator that communicates with said first wireless circuit (Figs. 3 and 9, reference numeral 3), that receives said first voltage level and that generates a first reference frequency (Figs. 3 and 9, reference numeral 3); and a second oscillator that receives said second voltage level, that communicates with said second wireless circuit, that consumes less power than said first oscillator and that generates a second reference frequency (Figs. 3 and 9, reference numeral 4; col. 5, lines 9-11) (note the modification of the wireless circuit in claim 134).

Regarding claim 200, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 137.

Regarding claim 139, in the obvious combination, Kohlschmidt discloses wherein said shutdown module shuts down said first oscillator (col. 7, lines 30-34) and operates said second oscillator during said low power mode (col. 7, lines 39-42) and operates said first oscillator during said active mode (col. 3, lines 28-32).

Regarding claim 202, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 139.

Regarding claim 140, in the obvious combination, Kohlschmidt discloses wherein said first wireless circuit includes a first phase locked loop (PLL) (col. 5, line 65 through col. 6, line 9), and wherein said shutdown module shuts down said first PLL during said low power mode (col. 5, line 65 through col. 6, line 9) and operates said first PLL during said active mode (col. 3, lines 28-32; col. 5, line 65 through col. 6, line 9).

Regarding claim 203, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 140.

Regarding claim 141, in the obvious combination, Kohlschmidt discloses wherein first wireless circuit includes at least one of a baseband processor (BBP) and/or a radio frequency (RF) transmitter (Fig. 1).

Regarding claim 204, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 141.

Regarding claim 142, in the obvious combination, Aoyama discloses wherein said first voltage supply includes a first voltage regulator (Figs. 3 and 9, reference Vdd) and said second voltage supply includes a second voltage regulator (Figs. 3 and 9, reference numeral 1).

Regarding claim 205, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 142.

Regarding claim 143, in the obvious combination, Kohlschmidt discloses wherein said shutdown module selectively calibrates said second reference frequency of said second oscillator

using said first reference frequency of said first oscillator before transitioning to said low power mode (col. 5, lines 38-43).

Regarding claim 206, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 143.

27. Claims 136, 144, 199, and 207 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination with Aoyama and Jokinen, and further in view of Amos.

Kohlschmidt/Aoyama discloses the wireless device of claim 134 (see above) further comprising a control device that includes said shutdown module (Kohlschmidt: Fig. 1, reference 103; col. 3, line 66 through col. 4, line 2), but fails to specifically disclose a medium access control (MAC) device. Note, however, that Kohlschmidt's Fig. 1, reference 103 can be fairly characterized as a MAC device.

Nevertheless, in the same field of endeavor, Amos discloses wherein a medium access control (MAC) device includes said shutdown module (col. 3, lines 3-8 and 19-24).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the control device of Kohlschmidt/Aoyama to be a MAC as suggested by Amos for the advantages of complying with wireless network configuration, such as the one in Kohlschmidt, they are widely available and are required to be responsive to events from a wireless of RF interface (Amos: col. 1, lines 41-43).

Regarding claim 199, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 136..

Regarding claim 144, Kohlschmidt discloses a system comprising the wireless device of claim 123 (see above), but fails to disclose further comprising a remote device that periodically

transmits a beacon, wherein said shutdown module transitions said wireless device from said low power mode to said active mode prior to receiving said beacon.

However, in the same field of endeavor, Amos discloses a system comprising a wireless device with active and low power modes further comprising a remote device for periodically transmitting a beacon, wherein said shutdown module transitions said wireless device from said low power mode prior to receiving a beacon (col. 1, lines 62-65; col. 5, lines 1-8).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to further comprise in the system of Kohlschmidt in combination with Hunter remote device for periodically transmitting a beacon, wherein said shutdown module transitions said wireless device from said low power mode prior to receiving a beacon as suggested by Amos because the system would determine if there is any activity that needs to be handled (Amos: col. 5, lines 8-9).

Regarding claim 207 , the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 144.

28. Claims 138 and 201 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination with Aoyama and Jokinen and further in view of Chapman.

Regarding claim 138, Kohlschmidt/Aoyama discloses the wireless device of claim 134 (see above) wherein said first oscillator includes a crystal oscillator (Kohlschmidt: col. 3, lines 41-56), but fail to specifically disclose said second oscillator includes a semiconductor oscillator.

However, in the same field of endeavor, Chapman discloses a wireless device with active and low power modes wherein said first oscillator includes a crystal oscillator (col. 4, lines 33-54) and said second oscillator includes a semiconductor oscillator (col. 4, lines 33-54).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to incorporate the second oscillator of Kohlschmidt/Aoyama to include a semiconductor oscillator as suggested by Chapman for the advantages of having the characteristics of drawing very little power in both sleep and stop modes (Chapman: col. 4, lines 39-43), and are widely available.

Regarding claim 201, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 138.

GROUP VII:

29. Claims 145-146, 151-152, 208-209, 214-215, 253-24, and 257 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in views of Aoyama and Jokinen.

Regarding claim 145, Kohlschmidt discloses a wireless device with active and low power modes, comprising:

a first oscillator that generates a first reference frequency (Fig. 1, reference 101);

a second oscillator that consumes less power than said first oscillator and that generates a second reference frequency (Fig. 1, reference 102);

a first circuit that communicates with said first oscillator (Fig. 1, references 104, 105, 106, and/or portions of 103, either alone or in combination; col. 5, line 65 through col. 6, line 9; col. 7, lines 30-34);

a second circuit that communicates with said second oscillator (Figs. 1 and 3-4; col. 7, lines 39-42); and

a shutdown module that shuts down said first circuit and said first oscillator in said low power mode (col. 7, lines 30-34 and 39-40) operates said second wireless circuit and said second

oscillator in said low power mode (col. 7, lines 39-42) and that operates said first wireless circuit in said active mode (col. 3, lines 28-32), and that operates said first wireless circuit and said first oscillator in said active power mode, wherein the wireless device at least one of transmits and receives data during the active mode (col. 1, lines 11-26; note that it is inherent that the wireless device at least one of transmits and receives data during the active mode).

Kohlschmidt fails to specifically disclose the first and second circuits are wireless; a first voltage supply that supplies a first voltage level to said first oscillator and a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator; the shut down module that shuts down said first voltage supply in said low power mode, transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode.

However, the Examiner takes Official Notice of the fact that it was notoriously well known in the art at the time of invention by applicant to modify circuits to be wireless for the advantages or facilitating maintenance and replacement of parts; thereby, making it more convenient and easier to manufacture.

In addition, it would have been an obvious matter of design choice to modify the circuits to be wireless since the applicant has not disclosed that the circuits being wireless solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the circuits of Kohlschmidt.

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the circuits of Kohlschmidt to be wireless for the advantages or

facilitating maintenance and replacement of parts, is more convenient, easier to manufacture and is the best engineering design choice.

In addition, in the same field of endeavor, Aoyama discloses a first voltage supply that supplies a first voltage level to said first oscillator (Figs. 3 and 9, reference Vdd) and a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator (Figs. 3 and 9, reference 1); transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode (from col. 7, line 66 through col. 8, line 2), and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode (col. 7, lines 39-49 and col. 8, lines 28-39).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to incorporate in the device of Kohlschmidt a first voltage supply that supplies a first voltage level to said first oscillator and a second voltage supply that supplies a second voltage level that is less than said first voltage level to said second oscillator; transitioning from said first voltage level to said second voltage level when transitioning from said active mode to said low power mode, and transitioning from said second voltage level to said first voltage level when transitioning from said low power mode to said active mode as suggested by Aoyama for the advantages of enabling respective units and circuits to maintain their operations while reducing power consumption (Aoyama: col. 3, lines 20-24) and for supplying different voltages for different sections of the circuitry since most electronic devices require it.

Furthermore, the combination fails to specifically disclose the shut down module that shuts down said first voltage supply in said low power mode. Note, however, that Kohlschmidt discloses that all components of the device may be shut down (col. 7, lines 39-42); thus suggesting, with the combination relied hereinabove, that the shut down module that shuts down said first voltage supply.

Nevertheless, in the same field of endeavor, Jokinen discloses a shut down module that shuts down said first voltage supply in said low power mode (Abstract).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to shut down, with the shut down module of Kohlschmidt, said first voltage supply in said low power mode as suggested by Jokinen for the advantages of reducing power consumption (Jokinen: Abstract).

Regarding claims 208 and 253, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 145.

Regarding claim 146, in the obvious combination, Kohlschmidt discloses wherein said first wireless circuit further comprises:

a radio frequency (RF) transceiver that communicates with said first oscillator and said first voltage supply (Fig. 1, reference 106; note that in the obvious combination the RF transceiver would communicate with the fist voltage supply); and

a baseband processor (BBP) that communicates with said first oscillator and said first voltage supply and that performs RF mixing (Fig. 1, references 104 and/or 105, either alone or in combination; col. 1, lines 46-51; note that in the obvious combination the BBP would communicate with the fist voltage supply and that it inherently performs RF mixing), wherein

said shutdown module shuts down said RF transceiver and said BBP during said low power mode (col. 7, lines 39-42).

Regarding claims 209 and 254, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 146.

Regarding claim 151, in the obvious combination, Aoyama discloses wherein said first voltage supply includes a first voltage regulator (Figs. 3 and 9, reference Vdd) and said second voltage supply includes a second voltage regulator (Figs. 3 and 9, reference 1).

Regarding claim 214, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 151.

Regarding claim 152, in the obvious combination, Kohlschmidt discloses wherein said shutdown module selectively calibrates said second reference frequency of said second oscillator using said first reference frequency of said first oscillator before transitioning to said low power mode (col. 5, lines 38-43).

Regarding claims 215 and 257, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 152.

30. Claims 147, 153, 210 216, and 258 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination with Aoyama and Jokinen, and further in view of Amos.

Regarding claim 147, Kohlschmidt/Aoyama discloses the wireless device of claim 145 (see above) further comprising a control device that includes said shutdown module (Kohlschmidt: Fig. 1, reference 103; col. 3, line 66 through col. 4, line 2), but fails to specifically

disclose a medium access control (MAC) device. Note, however, that Kohlschmidt's Fig. 1, reference 103 can be fairly characterized as a MAC device.

Nevertheless, in the same field of endeavor, Amos discloses wherein a medium access control (MAC) device includes said shutdown module (col. 3, lines 3-8 and 19-24).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the control device of Kohlschmidt/Aoyama to be a MAC as suggested by Amos for the advantages of complying with wireless network configuration, such as the one in Kohlschmidt, they are widely available and are required to be responsive to events from a wireless of RF interface (Amos: col. 1, lines 41-43).

Regarding claim 210, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 147.

Regarding claim 153, Kohlschmidt/Aoyama discloses a system comprising the wireless device of claim 145 (see above), but fails to disclose further comprising a remote device that periodically transmits a beacon, wherein said shutdown module transitions said wireless device from said low power mode to said active mode prior to receiving said beacon.

However, in the same field of endeavor, Amos discloses a system comprising a wireless device with active and low power modes further comprising a remote device for periodically transmitting a beacon, wherein said shutdown module transitions said wireless device from said low power mode prior to receiving a beacon (col. 1, lines 62-65; col. 5, lines 1-8).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to further comprise in the system of Kohlschmidt/Aoyama in combination with Hunter a remote device for periodically transmitting a beacon, wherein said shutdown module

transitions said wireless device from said low power mode prior to receiving a beacon as suggested by Amos because the system would determine if there is any activity that needs to be handled (Amos: col. 5, lines 8-9).

Regarding claims 216 and 258, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 153.

31. Claims 148 and 211 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination with Aoyama and Jokinen and further in view of Chapman.

Regarding claim 148, Kohlschmidt/Aoyama discloses the wireless device of claim 145 (see above) wherein said first oscillator includes a crystal oscillator (Kohlschmidt: col. 3, lines 41-56), but fail to specifically disclose said second oscillator includes a semiconductor oscillator.

However, in the same field of endeavor, Chapman discloses a wireless device with active and low power modes wherein said first oscillator includes a crystal oscillator (col. 4, lines 33-54) and said second oscillator includes a semiconductor oscillator (col. 4, lines 33-54).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to incorporate the second oscillator of Kohlschmidt/Aoyama to include a semiconductor oscillator as suggested by Chapman for the advantages of having the characteristics of drawing very little power in both sleep and stop modes (Chapman: col. 4, lines 39-43), and are widely available.

Regarding claim 211, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 148.

32. Claims 149-150, 212-213, and 255-256 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohlschmidt in combination with Aoyama and Jokinen, and further in view of Applicant's admitted prior art.

Regarding claim 149, Kohlschmidt/Aoyama disclose the wireless device of claim 146 (see above), including a first phase locked loop (PLL) (Kohlschmidt: col. 5, line 65 through col. 6, line 9), and wherein said shutdown module shuts down said first PLL during said low power mode and operates said first PLL during said active mode (Kohlschmidt: col. 6, lines 7-10); but fails to disclose wherein said RF transceiver includes the first PLL.

However, Applicant's admitted prior art discloses wherein said RF transceiver includes a first phase locked loop (PLL) (Background of the Invention: paragraph [0003]).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to include in the RF transceiver of Kohlschmidt/Amos/Aoyama a first phase locked loop as suggested by Applicant's admitted prior art for the advantages of making integral, placing in a single housing, and are widely available.

Regarding claims 212 and 255, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 149.

Regarding claim 150, Kohlschmidt/Aoyama disclose the wireless device of claim 149 (see above), wherein said shutdown module shuts down said second PLL during said low power mode and operates said second PLL during said active mode (Kohlschmidt: col. 6, lines 7-10; col. 7, lines 36-42), but fail to disclose wherein said BBP includes a second PLL.

However, Applicant's admitted prior art discloses wherein said BBP includes a second phase locked loop (PLL) (Background of the Invention: paragraph [0003]; note the plurality of phase locked loops).

Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to include in the BBP of Kohlschmidt/Aoyama a second phase locked loop as suggested by Applicant's admitted prior art for the advantages of adjusting the frequency of the input signal, making integral and placing under a single housing; in addition, that PLL are widely available.

Regarding claims 213 and 256, the limitations are rejected with the same grounds and for the same reasons and motivations stated above for claim 150.

Conclusion

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marivelisse Santiago-Cordero whose telephone number is (571) 272-7839. The examiner can normally be reached on Monday through Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (571) 272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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MSC

WILLIAM TROST
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Notice of References Cited	Application/Control No. 10/650,887	Applicant(s)/Patent Under Reexamination DONOVAN ET AL.	
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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2003/0132881	07-2003	Shi, Daliang	343/700.0MS
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	C	US-			
	D	US-			
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